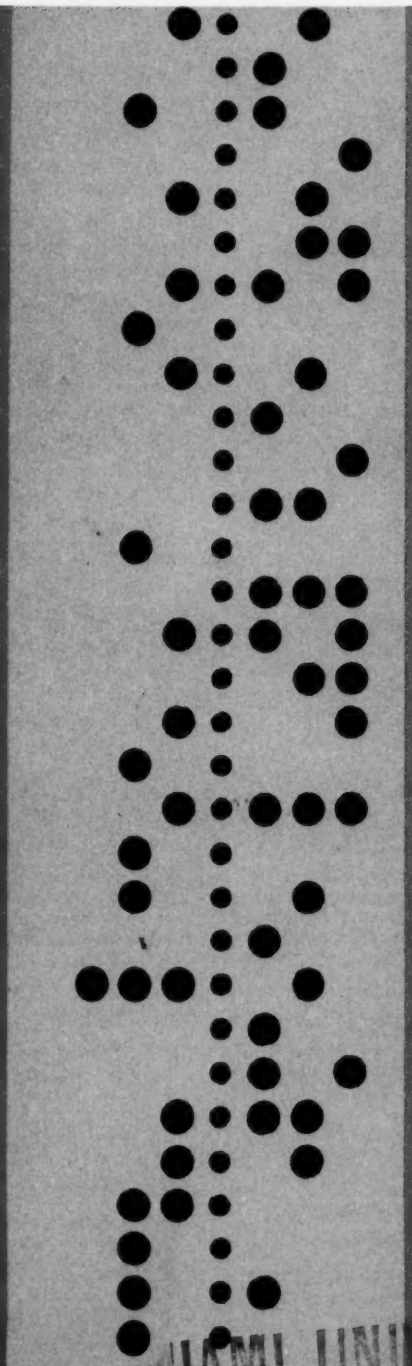
C 41.21:41/2

January 20, 1966

U.S. GOVERNMENT

RESEARCH & DEVELOPMENT REPORTS

FEB - 8 1966



FEB - 8 1966

Semi-Monthly Journal

- *Abstracts of R & D Reports*
- *List of Current R & D Projects*
- *Indexes*

CLEARINGHOUSE

FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION

UAMU UNIVERSITY LIBRARY

U. S. DEPARTMENT OF COMMERCE / NATIONAL BUREAU OF STANDARDS / INSTITUTE FOR APPLIED TECHNOLOGY

January 20, 1966 / Volume 41, Number 2

U.S. Government

RESEARCH AND DEVELOPMENT REPORTS

Issued twice a month by the Clearinghouse for Federal Scientific and Technical Information. Annual subscription $15 ($3.75 additional for foreign mailing). Single copy $1. Make remittance payable to Superintendent of Documents and mail either to a U.S. Department of Commerce Field Office or to Superintendent of Documents, U.S. Government Printing Office, Washington, D. C. 20402. Address changes should be sent to Superintendent of Documents.

PURPOSE

U.S. Government Research & Development Reports announces the availability of new reports of U.S. Government-sponsored R&D released by the Department of Defense, the Atomic Energy Commission, National Aeronautics & Space Administration, and other agencies. It also lists current Government-sponsored R&D projects.

TO ORDER REPORTS

Reports announced herein are available to the public from the Clearinghouse, or in some cases from other sources as noted. Order reports by accession/report (Stock Number) given on the first line of each entry and title from the Clearinghouse, U. S. Department of Commerce, Springfield, Va. 22151, or from any Department of Commerce Field Office (listed on inside back cover). Prices for hard copy (HC) and microfiche copy (MF) are given in the entry. Prepayment is required unless purchases are to be charged to Clearinghouse deposit accounts. Order forms are provided at the back of this journal. Make check or money order payable to National Bureau of Standards—CFSTI.

OTHER JOURNALS

NASA and AEC documents announced in this publication are also abstracted—along with other mission-oriented material—in the NASA journal *Scientific and Technical Aerospace Reports*, and the AEC journal *Nuclear Science Abstracts*. These publications are sold on subscription by Superintendent of Documents: *STAR* at $33 a year ($9 additional for foreign mailing); *NSA* at $30 a year ($7 additional for foreign mailing).

A consolidated index, *Government-Wide Index to Federal Research & Development Reports*, is published monthly by the Clearinghouse, using indexing data from *U.S. Government Research & Development Reports, Scientific and Technical Aerospace Reports*, and *Nuclear Science Abstracts*. It is sold by Superintendent of Documents at $16 a year ($4 additional for foreign mailing).

U.S. DEPARTMENT OF COMMERCE
John T. Connor, Secretary

CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION
Springfield, Va. 22151
Bernard M. Fry, Director

Contents may be printed freely. Mention of source will be appreciated. Use of funds for this publication approved by the Director of the Bureau of Budget, June 30, 1961.

special ANNOUNCEMENTS

USGRDR NOW CONTAINS DATA ON CURRENT R AND D PROJECTS

U. S. Government Research and Development Reports now includes a section announcing current Government R and D projects in the physical sciences, engineering and related technology. This service is designed to promote active interchange between research workers in the same or related fields by providing current awareness information on who is doing what research where.

Information published will include the project title, performing organization, principal investigator, and term of contract or grant. The information is obtained by the Clearinghouse from the Science Information Exchange (SIE) of the Smithsonian Institution, to which Federal agencies report their new projects. This service will be expanded later to include current development projects not normally reported to SIE.

This new Clearinghouse service will fill an information need long recognized by the Government and the scientific and technical community. It is one of the missions specified for the Clearinghouse by the Federal Council for Science and Technology.

PHOTOCOMPOSITION OF USGRDR

The two principal sections of USGRDR--Technical Abstract Bulletin (TAB) and Other Research Reports and Related Material--are now prepared on computer-actuated equipment.

Automatic photocomposition of the USGRDR starts with the document records (indexing data and abstracts) prepared on punched paper tape at the Clearinghouse. This tape is then put through a series of computer conversion processes for insertion into automatic photocomposition equipment at the U. S. Government Printing Office. From the final computer input the photocomposition equipment produces page length columns with justified margins. These columns are then assembled into complete journal pages for photo-offset printing.

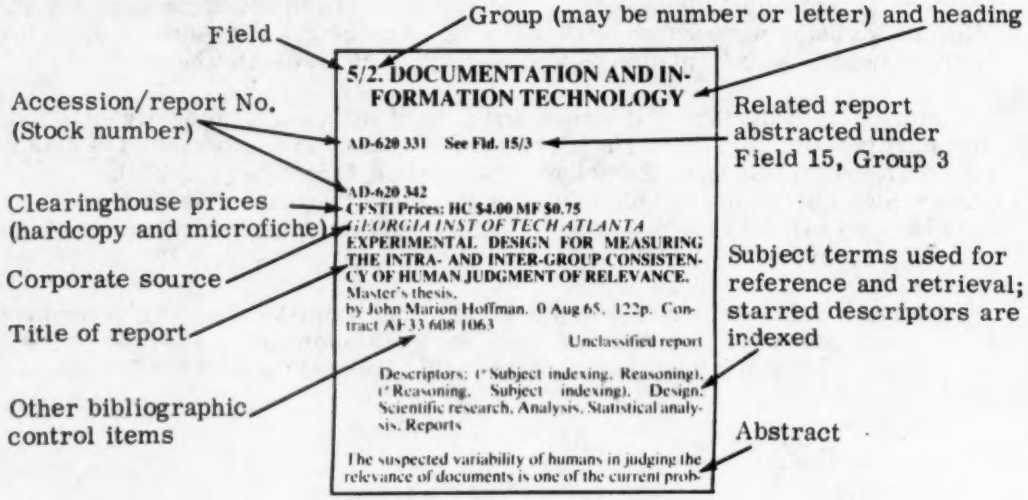
Apart from serving the interests of speed and economy, advantages of the new format are the contrasting type faces and greater compactness, making the entries easier to scan. Of more intrinsic value is the new computer-directed cross reference system now used in the TAB section that refers the reader to related reports announced under other Fields and Groups; see the sample entry on the following page. The Other Reports Section will have this feature soon.

798-319 O - 66 - A

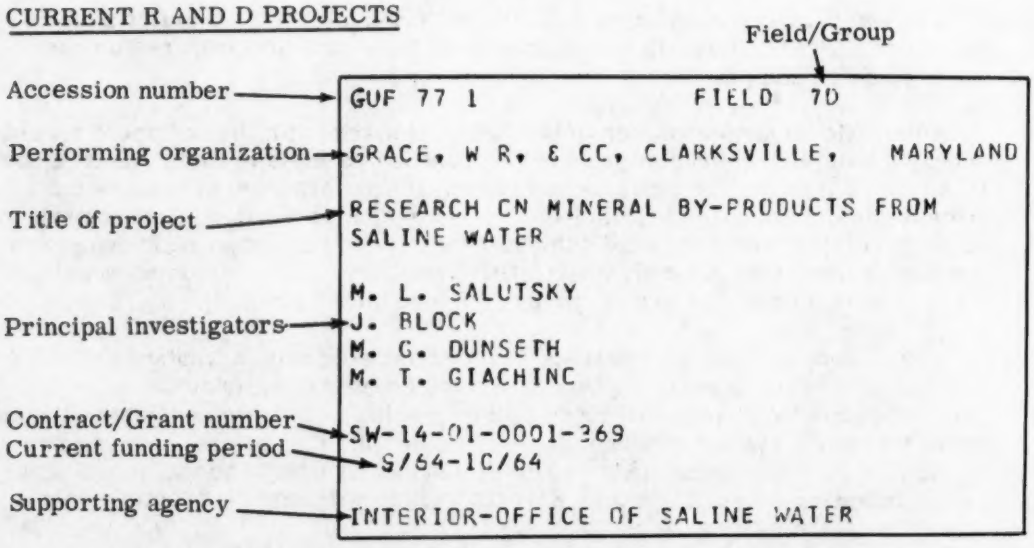
HOW TO USE
USGRDR

Entries are arranged under 22 subject categories called FIELDS. In the "Technical Abstract Bulletin" section, FIELDS are divided into sub-categories called GROUPS and occasionally subgroupings are also used. Documents are listed alpha-numerically (that is, alphabetic data precedes numerical data) by accession/report number. Although differing slightly in printing format, entries in the various sections contain essentially the same information.

- TECHNICAL ABSTRACT BULLETIN
- OTHER RESEARCH REPORTS


Field
Group (may be number or letter) and heading
5/2. DOCUMENTATION AND INFORMATION TECHNOLOGY
Accession/report No. (Stock number)
AD-620 331 See Fld. 15/3
Related report abstracted under Field 15, Group 3
AD-620 342
Clearinghouse prices (hardcopy and microfiche)
CFSTI Prices: HC $4.00 MF $0.75
Corporate source
GEORGIA INST OF TECH ATLANTA
Title of report
EXPERIMENTAL DESIGN FOR MEASURING THE INTRA- AND INTER-GROUP CONSISTENCY OF HUMAN JUDGMENT OF RELEVANCE.
Master's thesis,
by John Marion Hoffman. 0 Aug 65. 122p. Contract AF 33 608 1063
Unclassified report
Subject terms used for reference and retrieval; starred descriptors are indexed
Other bibliographic control items
Descriptors: (*Subject indexing, Reasoning), (*Reasoning, Subject indexing), Design, Scientific research, Analysis, Statistical analysis, Reports
Abstract
The suspected variability of humans in judging the relevance of documents is one of the current prob-

- CURRENT R AND D PROJECTS



CONTENTS

		Page
Section I	RESEARCH HIGHLIGHTS.	vii
	Reports of current high industrial interest	
Section II	CURRENT RESEARCH AND DEVELOPMENT PROJECTS.	xvii
	Listing of current Federally supported R and D projects	
Section III	TECHNICAL ABSTRACT BULLETIN (TAB).	1
	Department of Defense reports released by Defense Documentation Center	
	Citations of various articles in non-Government journals	
	Selected Government Printing Office publications	
	Indexes--Subject, Personal Author, Corporate Author-Monitoring Agency, Contract Number, Report Number, AD-Field	
Section IV	OTHER RESEARCH REPORTS AND RELATED MATERIAL	S-1
	Atomic Energy Commission reports including engineering (CAPE) drawings	
	National Aeronautics and Space Administration reports	
	Other civilian agency reports	
	Government-owned patents	
	Military reports previously classified or limited	
	Indexes--Subject, Personal Author, Corporate Source, Contract Number, Accession/Report Number	

SUBJECT CATEGORY HEADINGS

01	AERONAUTICS.....	1, S-1
	Includes aerodynamics; aeronautics; aircraft; aircraft flight control and instrumentation; and air facilities.	
02	AGRICULTURE.....	2, S-1
	Includes agricultural chemistry; agricultural economics; agricultural engineering; agronomy and horticulture; animal husbandry; and forestry.	

		Page
03	ASTRONOMY AND ASTROPHYSICS	3, S-1
	Includes astronomy; astrophysics; and celestial mechanics.	
04	ATMOSPHERIC SCIENCES	3, S-2
	Includes atmospheric physics and meteorology.	
05	BEHAVIORAL AND SOCIAL SCIENCES	5, S-3
	Includes administration and management; documentation and information technology; economics; history, law and political science; human factors engineering; humanities; linguistics; man-machine relations; personnel selection, training, and evaluation; psychology (individual and group behavior); and sociology.	
06	BIOLOGICAL AND MEDICAL SCIENCES	12, S-4
	Includes biochemistry; bioengineering; biology; bionics; clinical medicine; environmental biology; escape, rescue, and survival; food; hygiene and sanitation; industrial (occupational) medicine; life support; medical and hospital equipment and supplies; microbiology; personnel selection and maintenance(medical); pharmacology; physiology; protective equipment; radiobiology; stress physiology; toxicology; and weapon effects.	
07	CHEMISTRY	25, S-7
	Includes chemical engineering; inorganic chemistry; organic chemistry; physical chemistry; and radio and radiation chemistry.	
08	EARTH SCIENCES AND OCEANOGRAPHY	34, S-10
	Includes biological oceanography; cartography; dynamic oceanography; geochemistry; geodesy; geography; geology and mineralogy; hydrology and limnology; mining engineering; physical oceanography; seismology; snow, ice, and permafrost; soil mechanics; and terrestrial magnetism.	
09	ELECTRONICS AND ELECTRICAL ENGINEERING	37, S-11
	Includes components; computers; electronic and electrical engineering; information theory; subsystems; and telemetry.	
10	ENERGY CONVERSION (Non-Propulsive)	45, S-15
	Includes conversion techniques; power sources; and energy storage.	

		Page
11	MATERIALS	46, S-17
	Includes adhesives and seals; ceramics, refractories, and glasses; coatings, colorants, and finishes; composite materials; fibers and textiles; metallurgy and metallography; miscellaneous materials; oils, lubricants, and hydraulic fluids; plastics; rubbers; solvents, cleaners, and abrasives; and wood and paper products.	
12	MATHEMATICAL SCIENCES	50, S-21
	Includes mathematics and statistics and operations research.	
13	MECHANICAL, INDUSTRIAL, CIVIL, AND MARINE ENGINEERING	54, S-21
	Includes air conditioning, heating, lighting, and ventilating; civil engineering; construction equipment, materials, and supplies; containers and packaging; couplings, fittings, fasteners, and joints; ground transportation equipment; hydraulic and pneumatic equipment; industrial processes; machinery and tools; marine engineering; pumps, filters, pipes, tubing, fittings, and valves; safety engineering; and structural engineering.	
14	METHODS AND EQUIPMENT	57, S-23
	Includes cost effectiveness; laboratories, test facilities, and test equipment; recording devices; reliability; and reprography.	
15	MILITARY SCIENCES	60
	Includes antisubmarine warfare; chemical, biological, and radiological warfare; defense; intelligence; logistics; nuclear warfare; and operations, strategy, and tactics.	
16	MISSILE TECHNOLOGY	62
	Includes missile launching and ground support; missile trajectories; missile warheads and fuzes; and missiles.	
17	NAVIGATION, COMMUNICATIONS, DETECTION, AND COUNTERMEASURES	62, S-24
	Includes acoustic detection; communications; direction finding; electromagnetic and acoustic countermeasures; infrared and ultraviolet detection; magnetic detection; navigation and guidance; optical detection; radar detection; and seismic detection.	
18	NUCLEAR SCIENCE AND TECHNOLOGY	64, S-25
	Includes fusion devices (thermonuclear); isotopes; nuclear explosions; nuclear instrumentation; nuclear power plants; radiation shielding and protection; radioactive wastes and fission products; radioactivity; reactor engineering and operation; reactor materials; reactor physics; reactors (power); reactors (non-power); and SNAP technology.	

Page

19 ORDNANCE 66, S-33

Includes ammunition, explosives; bombs; combat vehicles; explosions, ballistics, and armor; fire control and bombing systems; guns; rockets; and underwater ordnance.

20 PHYSICS 67, S-34

Includes acoustics; crystallography; electricity and magnetism; fluid mechanics; masers and lasers; optics; particle accelerators; particle physics; plasma physics; quantum theory; solid-mechanics; solid-state physics; thermodynamics and wave propagation.

21 PROPULSION AND FUELS 81, S-41

Includes air-breathing engines; combustion and ignition.

22 SPACE TECHNOLOGY 83, S-43

Includes astronautics; spacecraft; spacecraft trajectories and reentry; and spacecraft launch vehicles and ground support.

RESEARCH highlights

Reports of current high industrial interest

Categories

	Page
Biological and Medical Sciences	vii
Control Systems and Instrumentation	viii
Electronics	ix
Fibers and Textiles	x
Fuels	x
Information Technology	xi
Lubricants	xi
Metals, Ferrous and Alloys	xii
Nuclear Technology	xii
Power Source Devices	xii
Semiconductors and Related Materials	xiii
Space Technology	xiv
Testing, Analysis	xiv
Transportation	xv
Report Selection Aids	xvi

Biological and Medical Sciences

INACTIVATED PARAINFLUENZA VACCINE SAFE AND EFFECTIVE FOR INFANTS

(Order PB-168 514 Inactivated Parainfluenza Type 1, Type 2, and Type 3 Vaccines in Infants: Antigenicity, Safety, HC $2.00/MF $0.50.)

Inactivated parainfluenza vaccine is safe and 90 to 100 percent effective for infants. This is the conclusion of Children's Hospital, Washington, D.C., after testing vaccine on 36 infants between 6 and 12 months old. Because parainfluenza virus infections are among the most prevalent causes of severe respiratory tract illness among infants and children, these agents have been given a high priority in this study made for the National Institutes of Health. Since there are no genetic markers for indicating virulence and possible attenuation of parainfluenza viruses, immediate efforts have been directed toward development of inactivated vaccines.

LABORATORY VIBRATOR MEASURES HEARING SENSITIVITY

(Order AD-615 916 Experimental Bone and Tissue Vibrator Assembly, HC $2.00/MF $0.50.)

A special purpose laboratory vibrator developed for the Aerospace Medical Research Laboratories measures the sensitivity of hearing caused by the introduction of vibratory motion into the skull and body. The instrument fills a void in that such a device having an adequate range of suitably controlled excitation has never before been available. The bioacoustic vibrator can be used in studies of hearing by bone and tissue conduction and in investigations of mechanical driving point impedance of bone and tissue. The vibrator assembly floats on an air bearing to give resonance-free operation over the frequency range of 100-10,000 cps and at intensity levels of 60 decibels above the threshold of hearing.

PERSONAL TELEMETRY SYSTEM TRANSMITS DATA OVER SEVEN FM CHANNELS

(Order AD-622 420 Personal Telemetry Transmitter System, HC $2.00/MF $0.50.)

A telemetry system has been developed that transmits an electroencephalogram, an electrocardiogram, galvanic skin resistance, respiration, and body temperature data over seven FM channels from a human subject to a receiver up to 200 feet away. Extremely compact packaging and miniature components make possible a device of 7.6 cubic inches in volume, including the battery. The person to whom the transmitter is attached can move about freely while the equipment is in use.

Control Systems and Instrumentation

FLUID AMPLIFICATION PAPERS AVAILABLE FROM LATEST DIAMOND SYMPOSIUM

(Order AD-623 455 Vol. I, Proceedings of the Fluid Amplification Symposium, HC $7.00/MF $1.75
AD-623 456 Vol. II, same title, HC $7.00/MF $1.75
AD-623 457 Vol. III, same title, HC $7.00/MF $1.75
AD-624 097 Vol. IV, same title, HC $6.00/MF $1.25.)

Sixty-four papers presented at the October 1965 Proceedings of the Fluid Amplification Symposium sponsored by the Army's Harry Diamond Laboratories in Washington, D.C., cover such fields as fluid circuit theory, bistable and proportional fluid amplifiers, vortex amplifiers, and fluid state digital to analog converters. One of the developers of the first wall-effect amplifier control at the Harry Diamond Labs in 1960, Dr. R. E. Bowles, describes pure fluid integrated controls that are not breadboard samples but were built for specific applications. They are a boiler control system, a speed control or governor, a pressure discriminator for process control, and an automatic sequencing control system that provides the logic for proper manipulation of a storage process.

Electronics

ELASTOMER FOR ENCAPSULATING ELECTRONIC ASSEMBLIES

(Order BDX-613-70 A New Development in Polyurethane Elastomer Processing Which Reduces Crack Susceptibility and Bubble Entrapments, HC $1.00/MF $0.50.)

A new processing technique for polyurethane elastomer developed for the AEC by Bendix reduces crack susceptibility and bubble entrapment. Several of the firm's manufacturing departments using polyurethane prepolymer for encapsulation of electrical and electronic assemblies note a definite decrease in scrap (due to bubbles and cracks) since introduction of the new technique. Assemblies that were difficult to encapsulate under a vacuum because of problems other than voids can now be encapsulated at atmospheric conditions and still stay within the void size tolerance. The new process involves degassing the components of the encapsulant at a pressure level below the encapsulation pressure prior to compounding. Then it is recommended that low pressure be maintained during the encapsulation process only long enough to fill the mold, allowing as many bubbles as possible to escape during the fill.

EXTENSIVE AIR FORCE WORK EXAMINES ANTENNA LOBE SUPPRESSION

(Order by the general title Antenna Lobe Suppression and AD-623 072 Vol. I, Modification of Horn Antennas for Low Sidelobe Levels, HC $3.00/MF $0.50
AD-623 073 Vol. II, E-Plane Radiation Pattern of an Antenna Model for Horn Antennas, HC $4.00/MF $0.75
AD-623 074 Vol. III, Radiating Mechanisms in a Reflector Antenna System, HC $1.00/MF $0.50
AD-623 075 Vol. IV, The H-Plane Radiation Pattern of Horn Antennas, HC $2.00/MF $0.50
AD-623 076 Vol. V, Grated Reflector Antennas for Spurious Radiation Reduction, HC $2.00/MF $0.50
AD-623 077 Vol. VI, Diffraction by Conducting Walls of Finite Thickness, HC $2.00/MF $0.50.)

Antenna lobe suppression is extensively treated in a 6-volume study made by Ohio State University for the Air Force's Rome Air Development Center. A Federal evaluator says the study "contains practical and useful information of value to manufacturers and users of antennas, expecially at frequencies from VHF up." During the course of the study Ohio State engineers found, among other things, that a corrugated horn has an E-plane pattern almost identical to that of an H-plane. Therefore, by principles of duality, this discovery suggests that the E-plane pattern of a corrugated horn can be solved by treating the corrugated surfaces as magnetic conductors. The report also concludes that the radiation mechanisms of horn antennas described by diffraction theory provide new points of view on electromagnetic radiation and propagation. Proper use of the theory gives solutions for most two-dimensional problems involving perfectly conducting wedges.

Fibers and Textiles

CARBON AND GRAPHITE FILAMENTS USED AS REINFORCING AGENTS

(Order AD-623 517 Filamentous Carbon and Graphite, HC $2.00/MF $0.50.)

Novel carbon and graphite filaments are being used as reinforcing agents in structural, ablative, and pyrolyzed plastics, and the composites thereof exhibit a combination of desirable properties not previously obtainable. Constructive pyrolysis of fibered organic materials yields a carbon or graphite fibrous textile product which is flexible, thermally stable, nonmelting, strong, lightweight, and chemically inert. These are the findings of an Air Force review of this evolving technology. The document reviews a century of progress in the development of filament carbon and graphite. It defines the properties, characteristics, and applications of state-of-the-art materials and presents new technical approaches for obtaining improved fibrous reinforcing agents of carbon and graphite.

Fuels

OTHER VALUABLE MINERALS IN COAL SEAMS SURVEYED

(Order PB-168 110 Part 1, Pennsylvania and Maryland Coal-Associated Mineral Occurrences and Markets, HC $3.00/MF $0.75
PB-168 111 Part 2, Ohio Coal-Associated Mineral Occurrences and Markets, HC $3.00/MF $0.75
PB-168 112 Part 3, West Virginia Coal-Associated Mineral Occurrences and Markets, HC $3.00/MF $0.75
PB-168 113 Part 4, Southern Appalachia Coal-Associated Mineral Occurrences and Markets (Virginia, Eastern Kentucky, Tennessee, and Alabama), HC $3.00/MF $0.75
PB-168 114 Part 5, Mid-Western Coal-Associated Mineral Occurrences and Markets (Illinois, Western Kentucky, Indiana, Missouri, Kansas, Iowa, and Texas), HC $5.00/MF $1.00
PB-168 115 Part 6, Western Coal-Associated Mineral Occurrences and Markets (Colorado, Montana, New Mexico, North Dakota, Utah, South Dakota, Washington, and Wyoming), HC $3.00/MF $0.75
PB-168 116 Part 7, Uses, Specifications, and Processes Related to Coal-Associated Minerals, HC $4.00/MF $1.00.)

A 7-volume study of coal and associated minerals in the United States identifies the extent, quality, and probable uses of potentially valuable minerals located above, in, and below significant coal seams. The work includes details on the location of nearby mineral markets and related coal-mining activity. Prepared by West Virginia University for the Department of Interior's Office of Coal Research, the study reviews thousands of publications and gives the results of hundreds of inquiries made about every coal-bearing area in the Nation. These feasibility volumes can help in the development of multi-product mining and processing by providing mine operators

and engineers with a knowledge of the relative importance of their coal-associated minerals. The final volume of the study includes the known, proposed, and new methods and processes vital to the use of clays, shales, limestones, sandstones, ash, and other associated minerals and by-products. For instance, the study finds that flyash-based structural materials compares well with ASTM specifications for clay brick. Its cost is low and long distance transportation is not normally involved.

Information Technology

COSATI CALLS FOR IMPROVED NATIONAL INFORMATION SYSTEMS

(Order AD-624 560 Recommendations for National Document Handling Systems in Science and Technology, HC $3.50/MF $2.75.)

A long-range plan for improved national document handling systems has been issued by the Federal Council for Science and Technology. The report was prepared by a task group of the Federal Council's Committee on Scientific and Technical Information (COSATI). The report is being reviewed by Federal organizations and groups concerned with science and technology, and its recommendations at this time are advisory. Some of these recommendations would place more responsibility on the Federal Government for meeting information needs in the United States. The report also recommends increasing support of both government and nongovernment information activities contributing to improved national systems. A major purpose of releasing the report at this time is to encourage active participation by nongovernmental groups.

Lubricants

DESIGN GUIDE FOR GAS LUBRICATED BEARING SYSTEM

(Order NYO-2512-1 Design Guide for Gas Lubricated Tilting Pad and Thrust Bearings With Special Reference to High Speed Rotors, HC $6.00.)

A 3-year study by the Franklin Institute has greatly added to the accumulated knowledge of practical design details for successful application of gas lubricated bearings to high speed rotor systems. A design guide reflects the analytic aspects that led to a family of performance curves for tilting pad journal bearings and gives ways to predict the dynamic characteristics of the bearing components and the rotor system. The experimental work also provides a quantitative correlation with the predicted behavior of the entire system and each of its elements. In this way it establishes a high degree of confidence in the analytical approach and the design procedures used.

Metals, Ferrous and Alloys

EQUIPMENT DEVELOPED FOR TESTING HARDNESS OF FERROUS MATERIALS

(Order AD-621 844 Phase Sensitive Eddy Current Test Equipment, HC $2.00/ MF $0.50.)

Nondestructive test equipment developed by the Army shows promise for the automatic hardness testing of ferrous materials. The equipment detects an eddy current signal voltage and automatically resolves it into in-phase and quadrature components. Army engineers have used the equipment to perform various tests for determining whether it is applicable for nondestructive hardness measurements of ferrous materials. Test results using the automatic phase detection technique are so promising that the Army believes practical systems can be developed to meet the requirements of their Materials Testing Technology Program.

Nuclear Technology

RADIOACTIVE COBALT FOR HEAT SOURCES

(Order DP-1012 Radioactive Cobalt for Heat Sources, HC $2.00.)

Recent operation of a Savannah River Plant reactor at high neutron fluxes has established the feasibility of producing large amounts of cobalt-60 at high specific activity (up to 700 curies of cobalt-60 per gram of initial cobalt). This material is well suited for use in relatively large heat sources to generate electricity, useful heat, or propulsion force for aerospace, terrestrial, or marine applications. It can be provided in larger quantities than other radioisotopes and at relatively low cost. Because of its advantages in such applications, the Savannah River Laboratory has undertaken a program to develop the technology required to design, fabricate, and operate cobalt-60 heat sources capable of producing up to 1,000 thermal kilowatts.

Power Source Devices

NEW HIGH PERFORMANCE FUEL CELL

(Order AD-611 558 A New High Performance Fuel Cell Employing Conducting-Porous-Teflon Electrodes (Miedrach-Alford) and Liquid Electrolytes, HC $2.00/ MF $0.50.)

A low temperature aqueous electrolyte fuel cell with new conducting-porous-Teflon electrodes performs excellently with a variety of fuels including hydrocarbons, and with both oxygen and air as the oxidant, according to General Electric, developer of the device for the Army. The structure of conducting-porous-Teflon electrodes has

been improved over previous work in strength, conductivity, and wetting characteristics. In their new form these very thin electrodes (5 to 10 mils) may be used with aqueous electrolytes without a matrix type support employed before. Among the excellent performance characteristics of the fuel cell is its ability to operate on air at practical current densities of 100-200 ma/cm^2. Hydrocarbon fuels and methanol also work well. The new cells may be operated with the electrolyte circulated through an external loop by thermal pumping, or the electrolyte may be used without such circulation. A number of the cells have been operated continuously for periods of months with encouraging results. One of the first hydrogen-oxygen cells was operated with an acid electrolyte and air as the oxidant at a current density of 176 ma/cm^2 for over 5 months. A similar alkaline cell was operated on hydrogen and oxygen at current densities of 263 and 88 ma/cm^2 for a similar period.

Semiconductors and Related Materials

EFFECT OF MECHANICAL STRAIN ON P-N JUNCTIONS PREDICTABLE

(Order N65-30953 Effect of Mechanical Strain on p-n Junctions, HC $4.00/ MF $0.75.)

Research Triangle Institute has developed a theory that accounts for the effect of mechanical strain on the electrical characteristics of germanium and silicon p-n junction devices. The model is based on the deformation potential theory of semiconductors -- that is, the change in the energy band structure with strain. RTI says there is good agreement between experimental data and the theoretical model. The theory explains the many facets of the piezojunction phenomenon as observed in silicon and germanium p-n junction devices. According to RTI, the theory should be useful in the design of semiconductor junction transducers and in evaluating and fabricating diodes and transistors.

RELIABILITY STUDY OF TRANSISTORS EXPLORES SURFACE BREAKDOWN

(Order AD-621 075 Reliability Physics Studies on Transistors, HC $4.00/ MF $0.75.)

Surface breakdown phenomena in oxide-protected silicon devices and in silicon power transistors have been explored by the Rome Air Development Center in their reliability physics studies of transistors. Rome offers a tentative model to explain observed surface breakdown phenomena, important features of which are surface channels under the silicon-silicon dioxide interface, a separation of the ionization region containing a high electric field and the trapping region, and the influence of mobile surface charges. Breakdown studies of silicon power transistors used simplified transistor structures and showed the stabilizing influence of the emitter and base series resistances. In addition to the stabilizing resistances, the use of the shorted emitter structure proved to be useful as a means to postpone or even avoid the appearance of second breakdown.

Space Technology

NASA ISSUES PROCUREMENT STANDARDS FOR APOLLO PROGRAM

(Order N65-24019 Apollo Program Mass Properties Standard, HC $3.00/ MF $0.75.)

Procurement standards for the Apollo program have been issued by NASA's Office of Manned Space Flight to establish a system for the management of mass properties during acquisition and use of space vehicles and parts. These guidelines can be of importance to suppliers not yet serving the space program but planning to do so. The standards are designed for the procurement of systematized, verifiable, and controllable mass properties of vehicle arrays; to facilitate rapid establishment and reporting of inputs for the weight performance relationship; and to enable extrapolation from present systems to newly evolving ones. NASA specifies that procuring activities shall, when necessary, require the meeting of these standards in contracts for portions of launch vehicles or spacecraft such as engines and instrumentation. The standards are explained under headings of definitions, requirements, quality assurance provisions, and preparation for delivery.

Testing, Analysis

ACOUSTICS USEFUL FOR NONDESTRUCTIVE TESTING OF ADHESIVE BONDS

(Order N65-25346 Acoustic Techniques for the Nondestructive Evaluation of Adhesively Bonded Composite Materials, HC $2.00/MF $0.50.)

Acoustic testing techniques for the effective nondestructive evaluation of complex adhesively bonded materials are particularly effective when the composites are characterized by high sound attenuation and by large variation in acoustic impedance of the component materials. This NASA study recommends the combination technique when composite panels containing HRP honeycomb core are to be inspected. Although a specimen must be scanned from both sides, the exact location of a defect with respect to depth within the panel can be determined. Standard ultrasonic instrumentation is used.

RADIOISOTOPES AND IONIZING RADIATION AIDING U.S. INDUSTRIES

(Order NYO-3337-16 Isotopes in Industry, Trends in the Industrial Use of Radioisotopes and Ionizing Radiation, HC $1.50.)

Radioisotopes and ionizing radiation are safely aiding virtually every major industry in America, saving them money, and the present use will likely grow, according to Arthur D. Little, Inc., in a study made for the AEC. The study points out that great strides are being made in the application of these relatively new nuclear innovations. Radioisotopes are being used in gaging, radiography, tracing, and radiation processing. They are particularly valuable for process control instrumentation

and in nondestructive testing. The rubber industry, for example, has achieved outstanding success in the use of radioisotope thickness gages for measurement and control of the thickness of rubber bonded to tire fabric. Another example of widespread successful application is in the tobacco industry, which makes considerable use of isotope density gages to control the weight of tobacco packed into cigarettes.

Transportation (Land, Sea, Air, Space)

HIGH SPEED TRAVEL THROUGH RAIL TUNNELS

(Order PB-168 647 Buffeting Tests on the Hudson Tube, HC $2.00/MF $0.50.)

Traveling at high speed through a tunnel poses the same problems for passengers as rapid descent in an airplane. The U.S. Department of Commerce says a series of tests shows that passengers on a railroad train rushing through a tunnel at speeds of 55 to 70 miles an hour would face the same air pressure build-up that they would diving 6000 to 7000 feet a minute in an airplane. A study on the subject was conducted for the Department by the Stanford Research Institute of Menlo Park, California, as part of longer-range research into the possibilities of improving high speed ground transportation to meet increasing passenger and freight demands in the heavily-populated areas of the country. The Department is looking first into future problems in the Washington-New York-Boston corridor where freight and passenger demand is expected to increase from 150 to 200 percent in a 20-year period ending in 1980. The advantages of high speed tunnel transport have been suggested by some transportation experts. They envisage tunnel-guided vehicles which would carry passengers at speeds competitive with today's jet airplanes.

MARITIME ADMINISTRATION ISSUES MONEY-SAVING CARGO SHIP SPECIFICATION

(Order PB-168 691 Standard Specification for Cargo Ship Construction, HC $11.70/MF $4.00.)

A book designed to save the Government and the marine industry thousands of dollars through standarization of ship designs, components, and systems has been compiled by the Maritime Administration's Office of Ship Construction. The specifications cover construction requirements for a modern oceangoing cargo liner. Ships to be built with construction-differential subsidy aid in the future will be expected to embody the specifications insofar as possible. The book will save the Government and industry large amounts of money since it will reduce construction costs through the general use of mass-produced, standardized ship components, decrease the shipowner's subsidizable costs for ship design and applied research, reduce the number of manhours necessary for the Maritime Administration to review proposed ship plans and specifications, and permit the adoption of individual design improvements and insure that they will be retained for future use.

The abundance of R&D reports available creates a problem for industry in extracting those most likely to prove of value—for technical solutions and in keeping up with new developments. These Clearinghouse tools and services are designed to narrow the search.

REPORT

selection aids

Pinpointing R & D for industry

GOVERNMENT-WIDE INDEX—monthly guide to Federal technical reports. Annual subscription $16, add $4 for foreign mailing, $1.75 single copy. Order from Superintendent of Documents, U. S. Government Printing Office, Washington, D. C., 20402.

TECHNICAL TRANSLATIONS—semimonthly foreign technical literature announcement journal listing Government and private sources. Annual subscription $12, add $4 for foreign mailing, single copy 60 cents. Order from Superintendent of Documents, U. S. Government Printing Office.

LITERATURE SEARCHING SERVICE—current awareness and retrospective at $11 an hour (8 hr. minimum searching time).

FAST ANNOUNCEMENT SERVICE—summaries of R & D reports mailed by industrial categories, free.

BIBLIOGRAPHIES—more than 200 are available free, send for a list.
Sample:
SB–403 (Suppl. 1, Revised) Food Preservation by Irradiation
SB–413 (Suppl. 1) Beryllium
SB–419 (Suppl. 1, Revised) Desalinization of Water
SB–475 (Suppl. 1) Information and Storage
SB–488 (Suppl. 2) Masers and Lasers

PACKAGED REVIEWS—resumes, abstracts and bibliographies, free.
Sample list:
OTR–116 Numerical Controls
OTR–117 Dielectric Films in Microelectronics
OTR–128 Plastic Coatings
OTR–129 Brazing Technology and Application
OTR–132 High Temperature Adhesives Above 500°F

Clearinghouse for Federal Scientific and Technical Information
5285 Port Royal Road, Springfield, Va. 22151

GSE

PRI
ENG
JER

HIG
STU

S.

NSF
9

NSF

GSP

UNI
PHY

SHO
EFF

H.

NSF
9

NSF

GSF

INC
AST

OBS
LIS

F.

NSF

NSF

GS

UN
AS

ST
GA
PR

W.

NS

NS

GS

UN
CH

TR
OF

P.

NS

NS

CURRENT research & development PROJECTS

01. Aeronautics

GSE 615 1 FIELD 20M,20D

PRINCETON UNIVERSITY, SCHOOL OF ENGINEERING, AEROSPACE + MECH SCI, NEW JERSEY

HIGH MACH NUMBER, LOW-DENSITY GAS DYNAMIC STUDIES

S. M. BOGDONOFF, S. H. LAM, R. N. ZAPATA

NSF-GK-59
9/65- 9/66

NSF-ENGINEERING SCIENCES DIVISION

GSP 1848 FIELD 20J,20C, 5A,20F

UNIVERSITY OF MARYLAND, GRADUATE SCHOOL, PHYSICS + ASTRONOMY, MARYLAND

SHOCK WAVE STRUCTURE AND PRECURSOR EFFECTS

H. R. GRIEM, E. HINTZ, T. WILKERSON

NSF-GP-2049
9/64- 9/65

NSF-PHYSICAL SCIENCES DIVISION

03. Astronomy and Astrophysics

GSP 222 4 FIELD 3A, 3C

INDIANA UNIVERSITY, GRADUATE SCHOOL, ASTRONOMY, INDIANA

OBSERVATIONS OF ASTEROIDS ON IAU CRITICAL LIST

F. EDMONDSON

NSF-GP-1952
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1117 2 FIELD 3A, 3B

UNIVERSITY OF CHICAGO, GRADUATE SCHOOL, ASTRONOMY + ASTROPHYS, ILLINOIS

STELLAR CLASSIFICATION AS RELATED TO GALACTIC STRUCTURE AND THE MORPHOLOGICAL PROPERTIES OF CLUSTERS OF GALAXIES

W. W. MORGAN

NSF-GP-1635
7/65- 7/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1234 2 FIELD 7D, 7C, 7B

UNIVERSITY OF ARKANSAS, GRADUATE SCHOOL, CHEMISTRY, ARKANSAS

TRACE ELEMENTS IN METEORITES AND THE AGE OF THE SOLAR SYSTEM

P. K. KURODS

NSF-GP-2017
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1617 1 FIELD 3A

UNIV OF CAL-BERKELEY, GRADUATE SCHOOL, ASTRONOMY, CALIFORNIA

MEMBERS OF THE LOCAL GROUP OF GALAXIES

P. W. HODGE

NSF-GP-2894
7/65- 7/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1618 1 FIELD 3A, 3B

UNIV OF CAL-BERKELEY, GRADUATE SCHOOL, ASTRONOMY, CALIFORNIA

DYNAMICS OF STELLAR SYSTEMS

I. R. KING

NSF-GP-3100
7/65- 7/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1665 1 FIELD 3A, 3B

MARIA MITCHELL ASSN., NTUCKET, MASS., MASSACHUSETTS

VARIABLE STARS

D. HOFFLEIT, D. *. HOFFLEIT

NSF-GP-2949
7/65- 7/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1742 1 FIELD 3A, 3C, 3B,20J

WESLEYAN UNIVERSITY, GRADUATE SCHOOL, PHYSICS, CONNECTICUT

GRAVITIONAL DEFLECTION OF LIGHT

H. A. HILL, E. FLETCHER

NSF-GP-3364
8/65- 8/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1828 1 FIELD 3A, 3B, 5A

LOUISIANA ST UNIV A+M, GRADUATE SCHOOL, PHYSICS + ASTRONOMY, LOUISIANA

VARIABLE STARS IN TAURUS AND SCORPIO-OPHIUCHUS

A. U. LANDOLT

NSF-GP-3391
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1866 1 FIELD 3A, 3B

UNIV OF PENNSYLVANIA, GRADUATE SCHOOL, ASTRONOMY, PENNSYLVANIA

ECLIPSING VARIABLES IN THE SOUTHERN HEMISPHERE

F. B. WOOD

NSF-GP-3256
7/65- 7/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1893 1 FIELD 3A

HAVERFORD COLLEGE, UNDERGRADUATE SCHOOL, ASTRONOMY, PENNSYLVANIA

CHEMICAL ABUNDANCES IN CERTAIN PECULIAR A STARS

L. C. GREEN, M. HANSELL, C. D. LITTLETON

NSF-GP-3409
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1933 1 FIELD 3A, 3B,12A

SAN DIEGO STATE COLL, GRADUATE SCHOOL, ASTRONOMY, CALIFORNIA

PHOTOELECTRIC STUDY OF ECLIPSING BINARY STARS

B. NELSON

NSF-GP-387
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1934 1 FIELD 3A, 3B, 5A

UNIVERSITY OF OREGON, GRADUATE SCHOOL, ASTRONOMY, OREGON

ECLIPSING BINARIES

E. G. EBBIGHAUSEN, G. MENIGER

NSF-GP-4146
2/65- 2/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1955 1 FIELD 3A, 3B

SYDNEY UNIVERSITY OF, AUSTRALIA

OBSERVATIONS OF GALACTIC AND EXTRAGALACTIC RADIO EMISSION IN THE SOUTHERN HEMISPHERE

B. Y. MILLS

NSF-GP-3418
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 2084 2 FIELD 3A, 3B

NORTHWESTERN UNIV, GRADUATE SCHOOL, ASTRONOMY, ILLINOIS

INFRARED SPECTROPHOTOMETRY OF STARS

J. D. BAHNG

NSF-GP-1358
6/65- 6/66

NSF-PHYSICAL SCIENCES DIVISION

04. Atmospheric Sciences

GH 729 2

COLORADO STATE UNIV, GRADUATE SCHOOL, ATMOSPHERIC SCIENCE, COLORADO

798-319 O - 66 - B

INVESTIGATION OF THE TEMPERATURE AND SPECTRAL EMISSIVITY CHARACTERISTICS OF CLOUD TOPS AND OF THE EARTHS SURFACE

W. E. MARLATT

NASA-NASR-147-P-1
5/64- 4/65

NASA

GH 851

NATL CTR ATMOSPH RES, BOULDER, COLORADO

DEVELOP BALLOON SYSTEMS AND CONDUCT HIGH-ALTITUDE BALLOON FLIGHTS

V. E. LALLY, W. O. ROBERTS
J. W. SPARKMAN

NASR-185
7/63- 5/64

NASA

GNE 1569 2

ATMOS. RES. LAB., CA, MASSACHUSETTS

CLOUD PHOTOGRAPHY

W. BOHAN

NR-082-184
9/64- 2/65

NAVY-OFFICE OF NAVAL RESEARCH

GNE 2403

BOLLAY, E ASSOCIATES, GOLETA, CALIFORNIA

FOG DROPLET GROWTH

D. O. ZOPF

NR-082-216
10/64- 9/65

NAVY-OFFICE OF NAVAL RESEARCH

GNE 2439

CALIFORNIA INDIV. GR, CALIFORNIA

CHARGE OF RAINDROPS

T. G. UWEBERG

NR-082-219
11/64-10/65

NAVY-OFFICE OF NAVAL RESEARCH

GPE 494 2 FIELD 4B,20C,20D

UNIV OF MINNESOTA, GRADUATE SCHOOL, MECHANICAL ENGINEERING, MINNESOTA

ELECTRICAL CHARGING OF SMALL PARTICLES AT LOW PRESSURES

B. Y. LIU, R. C. JORDAN, K. T. WHITBY

AT-11-1-1248
1/65- 1/66

AEC-BIOLOGY + MEDICINE

GPE 844 6 FIELD 4A,12A

MASS INST OF TECHNOL, GRADUATE SCHOOL, METEOROLOGY, MASSACHUSETTS

PLANETARY TRANSPORT PROCESSES IN THE STRATOSPHERE

R. E. NEWELL, E. N. LORENZ, V. P. STARR

AT-30-1-2241
9/64- 8/65

AEC-BIOLOGY + MEDICINE

GSP 1337 2 FIELD 4A

UNIVERSITY OF ALASKA, GRADUATE SCHOOL, GEOPHYSICS, ALASKA

INVESTIGATION OF NOCTILUCENT CLOUDS

Y. GOTAAS, B. T. FOGLE

NSF-GP-1759
7/65- 7/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1478 1 FIELD 8G,20C

NEW MEX INST MIN + TEC, UNDERGRADUATE SCHOOL, PHYSICS, NEW MEXICO

THUNDERSTORM ELECTRIFICATION

M. BROOK, N. KITAGAWA, T. OGAWA
E. J. WORKMAN

NSF-GP-1672
7/65- 7/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1672 1 FIELD 4B, 7B

NEW MEX INST MIN + TEC, GRADUATE SCHOOL, PHYSICS + GEOPHYSICS, NEW MEXICO

NATURAL ATMOSPHERIC RADIOACTIVITY

M. H. WILKENING

NSF-GP-2997
1/65- 9/65

NSF-PHYSICAL SCIENCES DIVISION

GSP 1805 1 FIELD 8D, 8F, 4B

STATE UNIV N Y ALBANY, UNDERGRADUATE SCHOOL, EARTH SCIENCES, NEW YORK

CLOUD PHYSICS FIELD RESEARCH

V. J. SCHAEFER

NSF-GP-3336
8/65- 8/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1885 1 FIELD 4A, 4B

RICE UNIVERSITY, GRADUATE SCHOOL, SPACE SCIENCE, TEXAS

ABSOLUTE POWER SPECTRUM OF THUNDER

A. J. DESSLER, R. K. COOK

NSF-GP-3455
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1894 1 FIELD 4A, 8+, 9+

UNIVERSITY OF ILLINOIS, SCHOOL OF ENGINEERING, ELECTRICAL ENGINEERING, ILLINOIS

APPLICATION OF PULSE COMPRESSION TECHNIQUES TO IONOSPHERE SOUNDING

S. A. BOWHILL

NSF-GP-3338
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1927 1 FIELD 7D, 7B

COLORADO STATE UNIV, SCHOOL OF ENGINEERING, MECHANICAL ENGINEERING, COLORADO

ANHYDROUS AMMONIA SILVER IODIDE NUCLEATION

R. L. STEELE, L. O. GRANT
R. A. SCHLEUSENER

NSF-GP-1663
7/65- 7/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 2082 FIELD 4A,12A

USDC, WEATH BUR, DIST OF COLUMBIA

AN IQSY STRATOSPHERIC MAP SERIES

G. P. CRESSMAN, S. TEWELES

NSF-GP-2464
2/64- 2/65

NSF-PHYSICAL SCIENCES DIVISION

GSP 2083 FIELD 4A

NATL ACAD SCI NAT RE, DIST OF COLUMBIA

ACTIVITIES OF THE COMMITTEE ON ATMOSPHERIC SCIENCES

J. R. SIEVERS

NSF-PS-13265
1/64-12/64

NSF-PHYSICAL SCIENCES DIVISION

GUW 35 FIELD 8H

MICHIGAN STATE UNIV, SCHOOL OF AGRICULTURE, AGRIC ENGINEERING, MICHIGAN

DETERMINATION OF INTENSITY-DURATION-FREQUENCY-AREAL COVERAGE OF INTENSE SUMMERTIME STORMS

R. Z. WHEATON, A. H. EICHMEIER
E. H. KIDDER

INT-WR-A-009-MICH
4/65- 9/65

INTERIOR-OFFICE OF WATER RESOURCES

05. Behavioral and Social Sciences

GH 641 1

KANSAS ST UNIV AGR SCI, SCHOOL OF AGRICULTURE, AGRICULTURAL ECONOMICS, KANSAS

SUPPORTING THE TRAINING OF APPROXIMATELY EIGHT - 8 - PRE-DOCTORAL GRADUATE STUDENTS IN SPACE-RELATED SCIENCE AND TECHNOLOGY

H. HOWE

NSG-T-54
9/64- 8/65

NASA

GSO 31 FIELD 12A, 7D

AMER CHEMICAL SOC WASH, DIST OF COLUMBIA

ANALYSIS OF THE ROLE OF THE COMPUTER IN SCIENTIFIC PUBLICATION

J. H. KUNEY

GN-426-N-2200
7/65- 6/66

NSF-OFFICE SCIENCE INFORMATION SERVICE

GSO 32 FIELD 12A, 8E

RUTGERS THE STATE UNIV, GRADUATE SCHOOL, NEW JERSEY

DEVELOPMENT OF A CLASSED THESAURUS AS AN AID TO INDEXING, CLASSIFYING, AND SEARCHING

G. LONDON, J. H. KELLEY, R. R. SHAW

GN-445
7/65- 6/66

NSF-OFFICE SCIENCE INFORMATION SERVICE

GSS 294 FIELD 5C

CARNEGIE INST TECHNOL, MISCELLANEOUS SCHOOLS, ECONOMICS, PENNSYLVANIA

EQUILIBRATING PROCESSES IN CAPITAL MARKETS

J. BOSSONS, K. J. COHEN

NSF-GS-597
9/64- 9/65

NSF-SOCIAL SCIENCES DIVISION

GSS 294 1 FIELD 5C

CARNEGIE INST TECHNOL, MISCELLANEOUS SCHOOLS, ECONOMICS, PENNSYLVANIA

EQUILIBRATING PROCESSES IN CAPITAL MARKETS

J. BOSSONS, K. J. COHEN

NSF-GS-597
9/65- 9/66

NSF-SOCIAL SCIENCES DIVISION

GSS 321 FIELD 12A, 5C

PURDUE UNIVERSITY, MISCELLANEOUS SCHOOLS, ECONOMICS, INDIANA

INTER-UNIVERSITY SEMINAR SERIES IN QUANTITATIVE ECONOMICS

J. S. DAY

NSF-GS-632
1/65- 4/66

NSF-SOCIAL SCIENCES DIVISION

GSS 322 FIELD 5C

UNIV OF TENNESSEE, GRADUATE SCHOOL, ECONOMICS, TENNESSEE

DETERMINANTS OF THE DEMAND FOR MONEY

T. H. LEE

NSF-GS-631
9/65- 9/66

NSF-SOCIAL SCIENCES DIVISION

GSS 425 1 FIELD 12A

UNIV OF MINNESOTA, GRADUATE SCHOOL, STATISTICS, MINNESOTA

THEORY OF PREFERENCE

J. S. CHIPMAN

NSF-GS-544
7/65- 7/66

NSF-SOCIAL SCIENCES DIVISION

GSS 503 FIELD 5C

UNIV OF WISCONSIN, GRADUATE SCHOOL, ECONOMICS, WISCONSIN

OPTIMAL SCALE AND MERGER IN INDUSTRY

L. W. WEISS

NSF-GS-648
2/65- 8/66

NSF-SOCIAL SCIENCES DIVISION

GSS 529 FIELD 13F

PENNSYLVANIA ST UNIV, GRADUATE SCHOOL, GEOGRAPHY, PENNSYLVANIA

ACCESSIBILITY ON DEVELOPING TRANSPORTATION NETWORKS

P. R. GOULD

NSF-GS-670
5/65- 5/66

NSF-SOCIAL SCIENCES DIVISION

GSS 595 FIELD 5C

AMERICAN UNIVERSITY, GRADUATE SCHOOL, DIST OF COLUMBIA

QUANTITATIVE STUDY OF DETERMINANTS OF ECONOMIC PERFORMANCE

C. T. MORRIS

NSF-GS-669
1/65- 1/66

NSF-SOCIAL SCIENCES DIVISION

GSS 973 FIELD 12A, 5C

GEORGE WASHINGTON UNIV, GRADUATE SCHOOL, STATISTICS, DIST OF COLUMBIA

EMPIRICAL STUDY OF TECHNOLOGICAL CHANGE

M. BROWN

NSF-GS-576
9/64- 9/65

NSF-SOCIAL SCIENCES DIVISION

06. Biological and Medical Sciences

GPE 989 FIELD 7C, 7D

JOHNS HOPKINS UNIV, SCHOOL OF PUBLIC HLTH, RADIOLOGICAL SCIENCES, MARYLAND

PHYSICAL INTERACTIONS AND RADIATION-INDUCED CHEMICAL LINKAGES OF POLYCYCLIC CARCINOGENS WITH NUCLEIC ACIDS

P. O. TSO, . CAMPBELL, S. RAPAPORT

AT-30-1-3538
6/65- 5/66

AEC-BIOLOGY + MEDICINE

GPE 995 FIELD 8G

ICELAND UNIV, ICELAND

BIOLOGICAL RESEARCH ON THE VOLCANIC ISLAND SURTSEY AND ENVIRON

S. FRIDRICKSSON

AT-30-1-3549
5/65- 5/66

AEC-BIOLOGY + MEDICINE

GSB 2882 FIELD 7C, 7D

CASE INST OF TECHNOL, GRADUATE SCHOOL, CHEMISTRY, OHIO

INTERACTIONS OF SYNTHETIC PEPTIDES WITH DERIVATIVES OF RIBONUCLEASE

J. E. SHIELDS

NSF-GB-3455
4/65- 4/66

NSF-BIOLOGICAL + MEDICAL SCIENCES DIVISI

07. Chemistry

GPE 576 1 FIELD 7C, 7D,20J, 7B

USDC, NATL BUR STAN, DIST OF COLUMBIA

FLASH SPECTROSCOPY

D. MANN

NBS-1504-11-15440
/64- /

AEC-BIOLOGY + MEDICINE

GPF 3 2 FIELD 7C, 7A, 7D, 7B

CAL INST OF TECHNOLOGY, GRADUATE SCHOOL, CHEMISTRY, CALIFORNIA

COMPLEXIONS AND REACTION MECHANISMS IN FRUITION

N. DAVIDSON, D. GRUNWEDEL, R. JENSEN T. WIRTH

AT(11-1)188
10/64- 9/65

AEC-DIVISION OF PHYSICAL RES

GPF 20 2 FIELD 7C, 7D, 7A,20J

UNIV OF PENNSYLVANIA, GRADUATE SCHOOL, CHEMISTRY, PENNSYLVANIA

INVESTIGATION OF STRUCTURE AND PROPERTIES OF MOLTEN SALTS

J. O. BOCKRIS, K. BALASUBRAHMANYA M. NAGARAJAN, L. NANIS

AT-30-1-1769
9/64- 8/65

AEC-DIVISION OF PHYSICAL RES

GPF 45 2 FIELD 3A, 3B, 8D, 5A

UNIV OF CAL-BERKELEY, GRADUATE SCHOOL, PHYSICS, CALIFORNIA

MASS SPECTROSCOPY RESEARCH

J. H. REYNOLDS, J. OEWS, C. HOHENBERG M. MUNK

AT-11-1-34-32
1/65-12/65

AEC-DIVISION OF PHYSICAL RES

GPF 52 2 FIELD 20M,11F,11G,20L

NEW YORK UNIVERSITY, SCHOOL OF ENGINEERING, METAL MECH + MAT SCI, NEW YORK

THERMODYNAMIC PROPERTIES OF INTERMETALLIC COMPOUNDS

K. L. KOMAREK, J. ELDRIDGE, E. MILLER M. RUBINFELD

AT-30-1-2916
1/65-12/65

AEC-DIVISION OF PHYSICAL RES

GPF 56 3 FIELD 7C, 7D, 7A, 7B,

UNIV OF TENNESSEE, GRADUATE SCHOOL, CHEMISTRY, TENNESSEE

IONIC AND FREE-RADICAL REACTIONS IN RADIATION CHEMISTRY

F. WILLIAMS, M. A. BONIN, J. A. HOUSTON J. W. LIN, D. H. MARTIN

AT-40-1-2968
1/65-12/65

AEC-DIVISION OF PHYSICAL RES

GPF 113 2 FIELD 7D

UNIV OF CONNECTICUT, GRADUATE SCHOOL, CHEMISTRY, CONNECTICUT

ANALYTICAL CHEMISTRY AT LOW CONCENTRATIONS

J. T. STOCK, I. ILMET

AT-30-1-1977
12/64-11/65

AEC-DIVISION OF PHYSICAL RES

GPF 122 3 FIELD 7C, 7D, 7A

BRANDEIS UNIVERSITY, GRADUATE SCHOOL, CHEMISTRY, MASSACHUSETTS

EFFECTS OF MERCAPTANS AND DISULFIDES ON PHOTOCHEMICAL AND HIGH ENERGY RADIATION INDUCED REACTIONS

S. G. COHEN, S. AKTIPIS, J. COHEN R. THOMAS

AT-30-1-2499
2/65- 1/66

AEC-DIVISION OF PHYSICAL RES

GPF 126 2 FIELD 3A, 8D, 8C, 7B

UNIVERSITY OF CHICAGO, GRADUATE SCHOOL, ENRICO FERMI INST, ILLINOIS

RADIOCHEMICAL AND GEOCHEMICAL STUDIES

E. ANDERS, H. AKAIWA, E. ●. ANDERS J. L. BARKER, D. HEYMANN

AT-11-1-382
3/65-12/65

AEC-DIVISION OF PHYSICAL RES

GPF 135 3 FIELD 7D

UNIV OF WISCONSIN, GRADUATE SCHOOL, CHEMISTRY, WISCONSIN

USE OF RADIOTRACERS IN CONTINUOUS ANALYSIS

W. J. BLAEDEL

AT-11-1-1082
3/65- 2/66

AEC-DIVISION OF PHYSICAL RES

GPF 164 2 FIELD 7D, 7A, 7B

UNIV OF SOUTHERN CALIF, GRADUATE SCHOOL, CHEMISTRY, CALIFORNIA

AQUEOUS CHEMISTRY OF FREE RADICALS AND OTHER INORGANIC REACTIVE INTERMEDIATES.

W. K. WILMARTH, H. CHENG, R. GAVER R. HAINES, F. LAMING, M. TSAO

AT-11-1-113-4
2/65- 1/66

AEC-DIVISION OF PHYSICAL RES

GPF 169 1 FIELD 20J,20L

POLYTECH INST BROOKLYN, GRADUATE SCHOOL, CHEMISTRY, NEW YORK

SOLID STATE POLYMERIZATION INITIATED BY GAMMA RADIATION

H. MORAWETZ

AT-30-1-1715
2/64- 1/65

AEC-DIVISION OF PHYSICAL RES

GPF 169 2 FIELD 7C, 7D, 7A,20H

POLYTECH INST BROOKLYN, GRADUATE SCHOOL, CHEMISTRY, NEW YORK

SOLID STATE POLYMERIZATION INITIATED BY GAMMA RADIATION

H. MORAWETZ

AT-30-1-175
2/65- 1/66

AEC-DIVISION OF PHYSICAL RES

GPF 235 1 FIELD 7A, 7D, 7B

DORDT COLLEGE, UNDERGRADUATE SCHOOL, CHEMISTRY, IOWA

INTERACTIONS OF AQUEOUS AND NONAQUEOUS IONS WITH OXIDE SURFACES

R. W. MAATMAN

AT-11-1-1354
3/65- 2/66

AEC-DIVISION OF PHYSICAL RES

GPF 255 3 FIELD 7D, 7B

UNIVERSITY NEW MEXICO, GRADUATE SCHOOL, CHEMISTRY, NEW MEXICO

BEHAVIOR OF ELEMENTS AT VERY LOW CONCENTRATIONS

M. KAHN, C. LIN, G. E. VANDESTEEG

AT-11-1-733
6/65- 5/66

AEC-DIVISION OF PHYSICAL RES

GPF 268 3 FIELD 7C, 7D, 7A,20M

PURDUE UNIVERSITY, GRADUATE SCHOOL, CHEMISTRY, INDIANA

POLAROGRAPHY IN NON-AQUEOUS SOLVENTS

T. DEVRIES, P. J. RICCA

AT-11-1-163
4/65- 3/66

AEC-DIVISION OF PHYSICAL RES

GPF 284 3 FIELD 7C, 7D,20J,20L

UNIVERSITY OF CHICAGO, GRADUATE SCHOOL, CHEMISTRY, ILLINOIS

RADIATION CHEMISTRY OF ORGANIC COMPOUNDS

N. C. YANG, E. FEIT

AT-11-1-1043
6/65- 5/66

AEC-DIVISION OF PHYSICAL RES

GPF 303 3 FIELD 7C, 7A, 7D,20J

ILLINOIS INST OF TECH, GRADUATE SCHOOL, CHEMISTRY, ILLINOIS

AROMATIC HYDROGEN EXCHANGE

A. J. KRESGE, H. L. CHEN, Y. CHIANG S. MYLONAKIS, R. A. OFERRALL D. P. ONWOOD, V. P. VITULLO

AT-11-1-1025
1/65- 1/66

AEC-DIVISION OF PHYSICAL RES

GPF 304 3 FIELD 7D, 5A,20F

ILLINOIS INST OF TECH, GRADUATE SCHOOL, PHYSICS, ILLINOIS

INVESTIGATION OF ENERGY TRANSFER PROCESSES BY FLASK PHOTOLYSIS

L. I. GROSSWEINER, T. K. BHATTACHARYA F. DUDEK, S. J. DUDKOWSKI, G. H. JIRGAL R. T. MCCALL, J. G. RING

AT-11-1-1052
6/65- 6/66

AEC-DIVISION OF PHYSICAL RES

GPF 306 3 FIELD 7D

INDIANA UNIVERSITY, GRADUATE SCHOOL, CHEMISTRY, INDIANA

STUDIES OF CHELATE COMPLEXES AND INSTRUMENTATION IN ANOLYTICAL CHEMISTRY

L. L. MERRITT, B. DUFFIN, R. E. ENSMAN K. F. STREIB, L. WALKER

AT-11-1-120
4/65- 3/66

AEC-DIVISION OF PHYSICAL RES

GPF 338 2 FIELD 7D,11B,11F,12A

UNIVERSITY OF MICHIGAN, GRADUATE SCHOOL, CHEMISTRY, MICHIGAN

ENERGETIC RECOIL ATOM REACTION MECHANISMS

A. A. GORDUS

AT-11-1-912
6/64- 5/65

AEC-DIVISION OF PHYSICAL RES

GPF 339 3 FIELD 7C, 7D, 7A,20J

UNIV OF MINNESOTA, GRADUATE SCHOOL, CHEMISTRY, MINNESOTA

THE CONTRIBUTION OF ELECTRONICALLY EXCITED STATES TO THE RADIATION CHEMISTRY OF ORGANIC LIQUIDS

S. LIPSKY, O. CHEN, S. FEWLEIB, G. GOMES F. HIRAYAMA, C. LAWSON, F. MELLOWS

AT-11-1-913
6/65- 5/66

AEC-DIVISION OF PHYSICAL RES

GPF 340 3 FIELD 7C, 7A, 7D,20M

UNIV OF WISCONSIN, GRADUATE SCHOOL, CHEMISTRY, WISCONSIN

APPLICATIONS OF RADIOISOTOPES TO CHEMICAL PROBLEMS

J. E. WILLARD, A. ADAMS, S. ADITYA R. C. CLARIDGE, H. FENRICK, D. HENDERSON R. M. IYER

AT-11-1-32
6/65- 5/66

AEC-DIVISION OF PHYSICAL RES

GPF 344 3 FIELD 7C, 7A, 7D,20M

UNIVERSITY OF MARYLAND, GRADUATE SCHOOL, CHEMISTRY, MARYLAND

ION ASSOCIATION IN POLYVALENT SYMMETRICAL ELECTROLYTES

G. ATKINSON, D. W. EBDON, K. TORRANCE

AT-40-1-2983
5/65- 5/66

AEC-DIVISION OF PHYSICAL RES

GPF 347 3 FIELD 7C, 7D, 7A,20M

FORDHAM UNIVERSITY, GRADUATE SCHOOL, CHEMISTRY, NEW YORK

THE THERMODYNAMICS AND KINETICS OF COORDINATION COMPOUNDS

M. CEFOLA, P. S. GENTILE

AT-30-1-906
6/65- 5/66

AEC-DIVISION OF PHYSICAL RES

GPF 374 3 FIELD 7D, 7A,20M, 7B

ILLINOIS INST OF TECH, GRADUATE SCHOOL, CHEMISTRY, ILLINOIS

HIGH TEMPERATURE CHEMISTRY - FUNDAMENTALS OF EFFUSION AND THERMODYNAMICS OF MATERIALS

P. G. WAHLBECK, P. BUDININKAS G. J. MACUR, A. SUZUKI, K. C. WANG

AT-11-1-1029
6/65- 5/66

AEC-DIVISION OF PHYSICAL RES

GPF 379 3 FIELD 7C, 7D, 7A, 7B

MICHIGAN STATE UNIV, GRADUATE SCHOOL, CHEMISTRY, MICHIGAN

THE EFFECTS OF POLYFUNCTIONAL ANIONS ON ELECTRON-TRANSFER BETWEEN METAL IONS IN SOLUTION

C. H. BRUBAKER, A. W. CHESTER
K. J. GRIMLEY, E. V. LUOMA, L. ZOMPA

AT-11-1-1001
6/65- 5/66

AEC-DIVISION OF PHYSICAL RES

GPF 389 3 FIELD 7C,20J,20C, 5A

UNIVERSITY OF NEBRASKA, GRADUATE SCHOOL, PHYSICS, NEBRASKA

ENERGY TRANSFER OF SLOW IONS

. JORGENSEN, A. EDWARDS, D. J. VOLZ

AT-11-1-35
6/65- 5/66

AEC-DIVISION OF PHYSICAL RES

GPF 395 3 FIELD 7D,20M,18A,20H

PURDUE UNIVERSITY, GRADUATE SCHOOL, CHEMISTRY, INDIANA

CHEMISTRY AND NUCLEAR CHEMISTRY OF THE HEAVY ELEMENTS

J. W. COBBLE, P. J. DALY

AT-11-1-347
6/65- 5/66

AEC-DIVISION OF PHYSICAL RES

GPF 396 3 FIELD 7C, 7D, 7A,20J

PURDUE UNIVERSITY, GRADUATE SCHOOL, CHEMISTRY, INDIANA

THE HYDROGEN FLUORIDE SOLVENT SYSTEM

A. F. CLIFFORD

AT-11-1-620
6/65- 5/66

AEC-DIVISION OF PHYSICAL RES

GPF 399 1 FIELD 7A, 7D,11F,11G

WESTINGHOUSE RES LAB, PENNSYLVANIA

REACTION OF HYDROGEN WITH ALLOYS OF ZIRCONIUM

E. A. GULBRANSEN, K. F. ANDREW, A. PEBLER
R. L. TALLMAN

AT-30-1-3203
6/65- 5/66

AEC-DIVISION OF PHYSICAL RES

GPF 408 3 FIELD 7C, 7D, 7A, 7B

UNIVERSITY OF ARKANSAS, GRADUATE SCHOOL, CHEMISTRY, ARKANSAS

TRACER AND ISOTOPE EFFECT STUDIES IN ORGANIC CHEMISTRY

A. FRY

AT-40-1-3234
5/65- 4/66

AEC-DIVISION OF PHYSICAL RES

GPF 434 1 FIELD 7D, 7A,20M,20J

CORNELL UNIVERSITY, GRADUATE SCHOOL, CHEMISTRY, NEW YORK

THE RATES OF ISOTOPE EXCHANGE REACTIONS, HOMOGENEOUS IN THE GAS PHASE

S. H. BAUER

AT-30-1-3211
4/64- 6/65

AEC-DIVISION OF PHYSICAL RES

GPF 456 3 FIELD 7C, 7D, 7A,20M

JOHNS HOPKINS UNIV, GRADUATE SCHOOL, CHEMISTRY, MARYLAND

STUDIES IN NUCLEAR CHEMISTRY

W. S. KOSKI

AT-30-1-1396
6/65- 5/66

AEC-DIVISION OF PHYSICAL RES

GPF 476 1 FIELD 7C, 7D,20J, 7B

PURDUE UNIVERSITY, GRADUATE SCHOOL, CHEMISTRY, INDIANA

BONDING STUDIES OF THE LIGHT ELEMENTS

G. URRY

AT-11-1-1388
6/65- 5/66

AEC-DIVISION OF PHYSICAL RES

GPF 509 3 FIELD 7C, 7D, 7A, 7B

UNIV OF WISCONSIN, GRADUATE SCHOOL, CHEMISTRY, WISCONSIN

STRIPPING ANALYSIS OF SULFIDES

I. SHAIN, J. HABERMAN

AT-11-1-1033
10/64- 9/65

AEC-DIVISION OF PHYSICAL RES

GPF 519 3 FIELD 7C, 7D, 7A,20M

UNIV OF CAL-L. A., GRADUATE SCHOOL, CHEMISTRY, CALIFORNIA

FLUOROCARBON SOLUTIONS

R. L. SCOTT, A. G. DAVENPORT, D. V. FENBY
J. B. GILMOUR, I. A. MCLURE

AT-11-1-34-13
8/65- 7/66

AEC-DIVISION OF PHYSICAL RES

GPF 531 2 FIELD 7C, 7D, 7A, 7B

WAYNE STATE UNIVERSITY, GRADUATE SCHOOL, CHEMISTRY, MICHIGAN

A KINETIC AND REACTION MECHANISM STUDY OF THE FORMATION AND DECOMPOSITION OF URANIUM OXIDE U3O8 IN ORGANIC MEDIA

K. H. GAYER, J. J. JASPER

AT-11-1-1065
6/65- 6/66

AEC-DIVISION OF PHYSICAL RES

GPF 883 2 FIELD 7D, 7A, 7B

TEMPLE UNIVERSITY, GRADUATE SCHOOL, CHEMISTRY, PENNSYLVANIA

SURVEY OF FIRST TRANSITION METAL IONS IN FUSED SALTS

G. W. HARRINGTON

AT-30-1-2780
5/64- 4/65

AEC-DIVISION OF PHYSICAL RES

GPF 885 FIELD 7C, 7D, 7B

UNIVERSITY OF MICHIGAN, GRADUATE SCHOOL, CHEMISTRY, MICHIGAN

CHEMISTRY OF TECHNETIUM

C. L. RULFS, R. A. PACER, M. A. WAKAT
AT-11-1-1483
5/65- 4/66

AEC-DIVISION OF PHYSICAL RES

GPF 891 FIELD 7D,20M,11F,11G

PENNSYLVANIA ST UNIV, SCHOOL OF ENGINEERING, METALLURGY, PENNSYLVANIA

TRANSFORMATIONS IN AB2 INTERMETALLIC COMPOUNDS

E. RYBA

AT-30-1-3560
6/65- 5/66

AEC-DIVISION OF PHYSICAL RES

GPF 893 FIELD 7C, 7D, 7A,20M

PENNSYLVANIA ST UNIV, GRADUATE SCHOOL, CHEMISTRY, PENNSYLVANIA

RADIATION CHEMISTRY AND MASS SPECTROMETRIC STUDIES OF SILANES AND SIMPLE ORGANO-SILANES

F. W. LAMPE, G. G. HESS, J. F. SCHMIDT

AT-30-1-3570
6/65- 6/66

AEC-DIVISION OF PHYSICAL RES

GPF 900 FIELD 7C, 7D, 7A,20M

NORTHWESTERN UNIV, GRADUATE SCHOOL, CHEMISTRY, ILLINOIS

MECHANISM OF HIGH ENERGY RADIATION EFFECTS IN HIGH POLYMERS

M. DOLE, D. M. BODILY, M. BUDZOL

AT-11-1-1088
9/65- 8/66

AEC-DIVISION OF PHYSICAL RES

GSE 484 2 FIELD 7C, 7D, 7A,11G

UNIVERSITY OF FLORIDA, SCHOOL OF ENGINEERING, CHEMICAL ENGINEERING, FLORIDA

ASPHALT REACTIONS

H. E. SCHWEYER

NSF-GP-1976
9/65- 9/66

NSF-ENGINEERING SCIENCES DIVISION

GSE 632 1 FIELD 7C, 7D, 7A

RICE UNIVERSITY, SCHOOL OF ENGINEERING, CHEMICAL ENGINEERING, TEXAS

EQUILIBRIUM AND TRANSPORT PHENOMENA BY GAS CHROMATOGRAPHY

R. KOBAYASHI, H. A. DEANS

NSF-GK-31
9/65- 9/66

NSF-ENGINEERING SCIENCES DIVISION

GSE 646 1 FIELD 7C, 7D,10B

UNIV OF CAL-BERKELEY, SCHOOL OF ENGINEERING, CHEMICAL ENGINEERING, CALIFORNIA

CONTROL OF TUBULAR CHEMICAL REACTORS

A. S. FOSS

NSF-GK-35
9/65- 9/66

NSF-ENGINEERING SCIENCES DIVISION

GSP 32 2 FIELD 7C, 7D,11F, 5A

BROWN UNIVERSITY, GRADUATE SCHOOL, PHYSICS, RHODE ISLAND

CHEMICAL REACTIONS AT ATOMICALLY-CLEAN SURFACES

H. E. FARNSWORTH

NSF-GP-3616
10/64-10/65

NSF-PHYSICAL SCIENCES DIVISION

GSP 532 5 FIELD 7C,20J,20L

STANFORD UNIVERSITY, GRADUATE SCHOOL, CHEMISTRY, CALIFORNIA

ELEMENTARY EXCITATIONS IN SOLID FREE RADICALS

H. M. MCCONNELL

NSF-GP-3430
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 534 4 FIELD 7C, 7D,20J

UNIV OF CAL-BERKELEY, SCHOOL OF CHEMISTRY, CHEMISTRY, CALIFORNIA

MICROWAVE SPECTRA AND MOLECULAR STRUCTURE

W. D. GWINN

NSF-GP-3399
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 537 4 FIELD 7C, 7A, 7D,20J

UNIV OF CAL-BERKELEY, GRADUATE SCHOOL, CHEMISTRY, CALIFORNIA

ORGANIC REACTION MECHANISMS

A. STREITWIESER

NSF-GP-1594
7/65- 7/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 552 4 FIELD 7C, 7D,20J

CARNEGIE INST TECHNOL, GRADUATE SCHOOL, CHEMISTRY, PENNSYLVANIA

CHARGE-TRANSFER COMPLEXES

A. K. COLTER

NSF-GP-3355
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 612 4 FIELD 7C, 7A, 7D

UNIVERSITY OF COLORADO, GRADUATE SCHOOL, CHEMISTRY, COLORADO

REARRANGEMENTS OF CYCLOPROPANOLS

C. H. DEPUY

NSF-GP-1957
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 639 4 FIELD 7C, 7D, 7A

MICHIGAN STATE UNIV, GRADUATE SCHOOL, CHEMISTRY, MICHIGAN

MECHANISMS OF ORGANIC REACTIONS BY USE OF ISOTOPES

G. J. KARABATSOS

NSF-GP-3343
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 654 4 FIELD 7C, 7A, 7D,20J

NEW MEX INST MIN + TEC, UNDERGRADUATE SCHOOL, CHEMISTRY, NEW MEXICO

MEASUREMENT AND INTERPRETATION OF THE VOLUME CHANGE OF ACTIVATION IN VARIOUS ORGANIC REACTIONS

K. R. BROWER

NSF-GP-1718
8/65- 8/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 656 4 FIELD 7C, 7A, 7D

STATE UNIV N Y STONY, UNDERGRADUATE SCHOOL, CHEMISTRY, NEW YORK

REACTIONS OF PHOSPHORUS COMPOUNDS

F. RAMIREZ

NSF-GP-3341
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 670 4 FIELD 7C, 7D

OHIO STATE UNIVERSITY, GRADUATE SCHOOL, CHEMISTRY, OHIO

CONDENSED CYCLOBUTANE AROMATIC COMPOUNDS

M. P. CAVA

NSF-GP-3369
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 678 4 FIELD 7C, 7A, 7D,20J

OREGON STATE UNIV, GRADUATE SCHOOL, CHEMISTRY, OREGON

MECHANISMS OF SNI REACTIONS

J. L. KICE

NSF-GP-1975
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 691 4 FIELD 7C, 7D

PENNSYLVANIA ST UNIV, GRADUATE SCHOOL, CHEMISTRY, PENNSYLVANIA

CHEMISTRY OF NITROGEN HETEROCYCLES

M. SHAMMA

NSF-GP-1941
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 758 4 FIELD 7C,20J

UNIV OF WISCONSIN, GRADUATE SCHOOL, CHEMISTRY, WISCONSIN

NEW AROMATIC SPECIES - OXOCARBONS AND CHLOROCARBONS

R. C. WEST, A. SADO

NSF-GP-3340
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 826 3 FIELD 7D,12A,20J

UNIV OF CAL-SANTA BARB, UNDERGRADUATE SCHOOL, CHEMISTRY, CALIFORNIA

MACROMOLECULAR CONFIGURATIONS - C ALCULATION OF REACTION PROBABILITIES

F. T. WALL

NSF-GP-3394
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1111 2 FIELD 7C, 7D

UNIV OF CAL-BERKELEY, GRADUATE SCHOOL, CHEMISTRY, CALIFORNIA

ORGANIC REACTION MECHANISMS

D. S. NOYCE

NSF-GP-1572
7/65- 7/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1123 2 FIELD 7C, 7D

DUQUESNE UNIVERSITY, GRADUATE SCHOOL, CHEMISTRY, PENNSYLVANIA

CHEMISTRY OF AZO DIENOPHILES

B. T. GILLIS

NSF-GP-1589
7/65- 7/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1140 2 FIELD 7C, 7D,20J

MASS INST OF TECHNOL, GRADUATE SCHOOL, CHEMISTRY, MASSACHUSETTS

INFLUENCE OF STEREOCHEMISTRY OF THE REACTANTS UPON IONIC AND RADICAL REACTIONS IN ORGANIC CHEMISTRY

A. C. COPE

NSF-GP-5055
7/65- 7/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1177 2 FIELD 7C, 7D,20J

SAN DIEGO STATE COLL, GRADUATE SCHOOL, CHEMISTRY, CALIFORNIA

FLUORESCENCE DECAY TECHNIQUES
W. R. WARE

NSF-GP-1619
7/65- 7/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1229 2 FIELD 7C

UNIVERSITY OF MICHIGAN, GRADUATE SCHOOL, CHEMISTRY, MICHIGAN

TOTAL SYNTHESIS OF TRITERPENES

R. E. IRELAND
NSF-GP-3342
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1236 2 FIELD 7C, 7A, 7D,20J

CAL INST OF TECHNOLOGY, GRADUATE SCHOOL, CHEMISTRY & CHEM ENGIN, CALIFORNIA

STRUCTURES AND REACTION MECHANISMS OF ORGANIC COMPOUNDS

J. D. ROBERTS

NSF-GP-1953
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1245 2 FIELD 7C, 7D,20J, 7B

UNIV OF CINCINNATI, GRADUATE SCHOOL, CHEMISTRY, OHIO

ASSISTED MULTI-CENTER MECHANISTIC PATHWAYS

R. E. DESSY

NSF-GP-1984
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1250 2 FIELD 7C

CORNELL UNIVERSITY, GRADUATE SCHOOL, CHEMISTRY, NEW YORK

CHEMISTRY OF ALPHA-HALOCYCLENONES AND RELATED SUBSTANCES

D. G. FARNUM

NSF-GP-1944
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1255 2 FIELD 7C,20J

FLORIDA STATE UNIV, GRADUATE SCHOOL, CHEMISTRY, FLORIDA

TERPENE CHEMISTRY

W. HERZ, S. INAYAMA, S. RAJAPPA

NSF-GP-1962
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1261 2 FIELD 7C

UNIVERSITY OF ILLINOIS, GRADUATE SCHOOL, CHEMISTRY & CHEM ENGIN, ILLINOIS

STRUCTURAL STUDIES ON MEDIUM-AND SMALL-RING COMPOUNDS

N. J. LEONARD
NSF-GP-2012
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1262 2 FIELD 7C, 7D

IOWA ST UNIV SCI TECH, GRADUATE SCHOOL, CHEMISTRY, IOWA

ELECTRON TRANSFER REACTIONS OF CARBANIONS

G. A. RUSSELL

NSF-GP-1579
7/65- 7/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1292 2 FIELD 7C,20J

PENNSYLVANIA ST UNIV, GRADUATE SCHOOL, CHEMISTRY, PENNSYLVANIA

ALIPHATIC CARBONIUM IONS

R. G. HERMAN

NSF-GP-1609
7/65- 7/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1305 2 FIELD 7C, 7D,20J

SMITH COLLEGE, GRADUATE SCHOOL, CHEMISTRY, MASSACHUSETTS

SYNTHETIC AND STRUCTURAL INVESTIGATIONS OF NATURAL PRODUCTS

M. D. SOFFER

NSF-GP-1972
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1309 2 FIELD 7C, 7D,20J

UNIV OF TENNESSEE, GRADUATE SCHOOL, CHEMISTRY, TENNESSEE

PROXIMITY EFFECTS

D. C. KLEINFELTER

NSF-GP-1574
7/65- 7/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1316 2 FIELD 7C, 7D, 7B

WAYNE STATE UNIVERSITY, GRADUATE SCHOOL, CHEMISTRY, MICHIGAN

ADDITION OF NITRONES TO OLEFINS

N. A. LEBEL

NSF-GP-2004
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1319 2 FIELD 7C, 7D

UNIV OF WISCONSIN, GRADUATE SCHOOL, CHEMISTRY, WISCONSIN

WAGNER-MEERWEIN REARRANGEMENTS

J. A. BERSON

NSF-GP-1608
7/65- 7/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1331 2 FIELD 7C, 7D, 7A, 7B

HARVARD UNIVERSITY, GRADUATE SCHOOL, CHEMISTRY, MASSACHUSETTS

HIGH-TEMPERATURE REACTIONS

G. B. KISTIAKOWSKY

NSF-GP-3339
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1393 2 FIELD 7D,20J,20F

CORNELL UNIVERSITY, GRADUATE SCHOOL, CHEMISTRY, NEW YORK

PHYSICAL AND CHEMICAL PROCESSES IN FLAME EMISSION AND ABSORPTION SPECTROSCOPY

W. D. COOKE

NSF-GP-1818
8/65- 7/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1402 2 FIELD 7C, 7D

COLUMBIA UNIVERSITY, GRADUATE SCHOOL, CHEMISTRY, NEW YORK

SYNTHETIC AND STRUCTURAL PROBLEMS IN ORGANIC CHEMISTRY

G. STORK

NSF-GP-1959
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1406 2 FIELD 7C, 7A, 7D

FLORIDA STATE UNIV, GRADUATE SCHOOL, CHEMISTRY, FLORIDA

CYCLOPROPANES - STUDIES IN ASYMMETRIC SYNTHESIS

H. M. WALBORSKY

NSF-GP-2020
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1426 2 FIELD 7C, 7D,20J, 7B

HARVARD UNIVERSITY, GRADUATE SCHOOL, CHEMISTRY, MASSACHUSETTS

CATALYTIC, STEREOCHEMICAL AND SYNTHETIC APPLICATIONS OF METAL-ION COORDINATION IN ORGANIC CHEMISTRY

E. J. COREY

NSF-GP-1955
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1556 1 FIELD 7C, 7D

UNIV OF VT + ST AGRIC, GRADUATE SCHOOL, CHEMISTRY, VERMONT

MECHANISMS OF AROMATIC REARRANGEMENTS

W. N. WHITE

NSF-GP-1970
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1585 1 FIELD 7C, 7D, 7B

LOYOLA UNIVERSITY, GRADUATE SCHOOL, CHEMISTRY, ILLINOIS

INVESTIGATION OF TELLURIUM - IV - AND TELLURIUM - II - HALIDE COMPLEXES

B. JASELSKIS
NSF-GP-2011
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1599 1 FIELD 20J, 5A, 7B

PRINCETON UNIVERSITY, GRADUATE SCHOOL, PHYSICS, NEW JERSEY

ATOMIC SPECTRA

A. G. SHENSTONE

NSF-GP-2862
7/65- 7/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1735 1 FIELD 7C,20J, 7B

UNIV OF WISCONSIN, GRADUATE SCHOOL, CHEMISTRY, WISCONSIN

VALIDITY OF SEMI-EMPIRICAL METHODS OF MOLECULAR ORBITAL CALCULATIONS FOR TRANSITION METAL COMPLEXES

R. F. FENSKE

NSF-GP-3413
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1736 1 FIELD 7C,20J

UNIV OF TENNESSEE, GRADUATE SCHOOL, CHEMISTRY, TENNESSEE

VIBRATION SPECTRA AND MOLECULAR FORCE FIELDS

W. H. FLETCHER

NSF-GP-3405
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1749 1 FIELD 7C, 7D,20J

UNIVERSITY OF FLORIDA, GRADUATE SCHOOL, CHEMISTRY, FLORIDA

THE ARYLTROPYLIUM SERIES

M. A. BATTISTE

NSF-GP-3352
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1743 1 FIELD 7C,20J, 7B

PRINCETON UNIVERSITY, GRADUATE SCHOOL, CHEMISTRY, NEW JERSEY

ISOTROPIC SHIFTS IN THE NMR SPECTRA OF PARAMAGNETIC SYSTEMS

W. D. HORROCKS

NSF-GB-3397
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1754 1 FIELD 20M,11B,11F, 5A

BROWN UNIVERSITY, GRADUATE SCHOOL, PHYSICS, RHODE ISLAND

NUCLEAR MAGNETIC RESONANCE IN CRYSTALLINE AND VITREOUS MATERIALS

P. J. BRAY

NSF-GP-2992
7/65- 7/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1758 1 FIELD 7C, 7D, 7A,12A

UNIV OF MINNESOTA, GRADUATE SCHOOL, CHEMISTRY, MINNESOTA

INFRARED INTENSITIES IN CONDENSED PHASES

B. L. CRAWFORD

NSF-GP-3411
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1759 1 FIELD 7C, 7D

PRINCETON UNIVERSITY, GRADUATE SCHOOL, CHEMISTRY, NEW JERSEY

CHEMICAL SYSTEMS AND INSTRUMENTS RELATED TO CHEMICAL ANALYSIS

C. G. ENKE, R. A. BAXTER, T. G. SPIRO
NSF-GP-3404
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1761 1 FIELD 20J, 5A

STATE UNIV N Y STONY, UNDERGRADUATE SCHOOL, PHYSICS, NEW YORK

STATISTICAL THEORY OF ATOMIC AND MOLECULAR WAVE FUNCTIONS

N. L. BALAZS

NSF-GP-3203
7/65- 7/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1763 1 FIELD 7D, 7A, 7B

AUGUSTANA COLLEGE, UNDERGRADUATE SCHOOL, CHEMISTRY, SOUTH DAKOTA

KINETICS AND MECHANISMS OF OXIDATION-REDUCTION REACTIONS OF SILVER - II -

A. VISTE

NSF-GP-3424
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1765 1 FIELD 7C, 7D, 7A,20J

NORTHWESTERN UNIV, GRADUATE SCHOOL, CHEMISTRY, ILLINOIS

RATE AND A MECHANISM OF VERY RAPID INORGANIC REACTIONS
R. G. PEARSON

NSF-GP-3400
9/65- 9/66
NSF-PHYSICAL SCIENCES DIVISION

GSP 1766 1 FIELD 7D, 7B

BUCKNELL UNIVERSITY, UNDERGRADUATE SCHOOL, PHYSICS, PENNSYLVANIA

DEUTERON INTERACTIONS WITH LIGHT NUCLEI

W. S. PORTER

NSF-GP-3177
7/65- 7/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1771 1 FIELD 7C, 7D

UNIV OF MINNESOTA, GRADUATE SCHOOL, CHEMISTRY, MINNESOTA

EXPANSION REACTIONS INVOLVING CARBENE INTERMEDIATES

W. E. PARHAM

NSF-GP-3357
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1773 1 FIELD 7C, 7A, 7D,20J

UNIV OF CINCINNATI, GRADUATE SCHOOL, CHEMISTRY, OHIO

SELENIUM DEHYDROGENATION

M. ORCHIN
NSF-GP-3356
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1774 1 FIELD 20C, 5A,20L, 7B

COLUMBIA UNIVERSITY, GRADUATE SCHOOL, PHYSICS, NEW YORK

ENDOR, NMR AND OPTICAL MEASUREMENTS ON ALKALI HALIDES

R. L. MIEHER

NSF-GP-3385
9/65- 8/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1775 1 FIELD 7C, 7D, 7A, 7B

UNIV OF MASSACHUSETTS, GRADUATE SCHOOL, CHEMISTRY, MASSACHUSETTS

MECHANISMS OF DISPLACEMENT REACTIONS AT TRIVALENT SULFUR

W. E. MCEWEN
NSF-GP-3337
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1776 1 FIELD 7C, 7A,20J,20C

UNIV OF CAL-RIVERSIDE, GRADUATE SCHOOL, CHEMISTRY, CALIFORNIA

ENDOR AND PARAMAGNETIC RESONANCE

A. H. MAKI

NSF-GP-3398
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1778 1 FIELD 7C, 7D,20M, 7B

UNIV OF CAL-L. A., GRADUATE SCHOOL, CHEMISTRY, CALIFORNIA

STRUCTURAL AND THERMODYNAMIC STUDIES ON GROUP VIB COMPOUNDS

J. D. MCCULLOUGH

NSF-GP-3408
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1788 1 FIELD 7C, 7D,20J

OHIO STATE UNIVERSITY, GRADUATE SCHOOL, CHEMISTRY, OHIO

SYNTHESIS OF HIGHLY HINDERED COMPOUNDS AND CYCLIC KETONES

M. S. NEWMAN

NSF-GP-3178
7/65- 7/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1789 1 FIELD 7C, 7D, 7A,20J

PRINCETON UNIVERSITY, GRADUATE SCHOOL, CHEMISTRY, NEW JERSEY

CARBONIUM IONS

P. V. SCHLEYER

NSF-GP-3362
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1812 1 FIELD 7C, 7D

STATE UNIV N Y BUFFALO, GRADUATE SCHOOL, CHEMISTRY, NEW YORK

CYCLIC AZOALKANES AS INTERMEDIATES IN THE SYNTHESIS OF STRAINED CARBOCYCLIC SYSTEMS

J. J. TUFARIELLO

NSF-GP-3525
10/65-10/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1815 1 FIELD 7D,20J, 7B

UNIV OF CONNECTICUT, GRADUATE SCHOOL, CHEMISTRY, CONNECTICUT

NEW TERNARY COMPOUNDS

R. WARD, C. W. MOELLER

NSF-GP-3461
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1841 1 FIELD 7C, 7D,20J

OHIO UNIVERSITY, GRADUATE SCHOOL, CHEMISTRY, OHIO

ISOLATION AND STRUCTURE DETERMINATION OF CERTAIN NEW ALKALOIDS

W. W. PAUDLER

NSF-GP-3344
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1871 1 FIELD 7C, 7D

UNIV OF CAL-L. A., GRADUATE SCHOOL, CHEMISTRY, CALIFORNIA

ORGANIC PHOTOCHEMISTRY IN SOLUTION

C. S. FOOTE

NSF-GP-3358
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1879 1 FIELD 7C, 7A, 7D,20J

UNIV OF WASHINGTON, GRADUATE SCHOOL, CHEMISTRY, WASHINGTON

BORON AND SILICON COMPOUNDS

D. M. RITTER

NSF-GP-3459
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1913 1 FIELD 7C, 7D, 7A,20J

UNIV OF CAL-BERKELEY, GRADUATE SCHOOL, CHEMISTRY, CALIFORNIA

BASIC ORGANIC CHEMISTRY

F. R. JENSEN

NSF-GP-1713
8/65- 8/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1939 FIELD 7C, 7A, 7D,20L

AMER FDN FOR BIOL RES, WISCONSIN

CHEMICAL PHYSICS OF FREEZING

B. J. LUYET

NSF-GP-3630
10/64-10/65

NSF-PHYSICAL SCIENCES DIVISION

GSP 2015 1 FIELD 7C, 7D,20J

UNIV OF WISCONSIN, GRADUATE SCHOOL, CHEMISTRY, WISCONSIN

MECHANISTIC AND EXPLORATORY ORGANIC PHOTOCHEMICAL STUDIES

H. E. ZIMMERMAN

NSF-GP-1966
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 2086 2 FIELD 7C, 7D, 7A,20M

UNIV OF PITTSBURGH, GRADUATE SCHOOL, CHEMISTRY, PENNSYLVANIA

PROPERTIES OF ELECTROLYTES IN NITRILES AS SOLVENTS

J. F. COETZEE

NSF-GP-1479
6/65- 6/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 2089 2 FIELD 7C, 7A, 7D, 7B

NORTHWESTERN UNIV, GRADUATE SCHOOL, CHEMISTRY, ILLINOIS

CARBON MONOXIDE EXCHANGE AND SUBSTITUTION REACTIONS OF METAL CARBONYLS

F. BASOLO

NSF-GP-1471
6/65- 6/66

NSF-PHYSICAL SCIENCES DIVISION

GUE 24 FIELD 7C,21D, 7D, 7B

MASS INST OF TECHNOL, SCHOOL OF ENGINEERING, CHEMICAL ENGINEERING, MASSACHUSETTS

FEASIBILITY STUDY RELATIVE TO THE CONVERSION OF ANTHRACITE COAL TO ACETYLENE

R. F. BADDOUR, W. R. VIETH, S. WASILEWSKI

1/64-12/64

INTERIOR-OFFICE OF SALINE WATER

GUE 53 2 FIELD 7D, 8H,10B

UNIVERSITY OF ARIZONA, GRADUATE SCHOOL, INST ATMOSPH PHYSICS, ARIZONA

DEVELOPMENT OF A SEPARATE COMPONENT MULTIPLE-EFFECT SOLAR DISTILLATION SYSTEM FOR DESALINATION

C. N. HODGES, J. E. GROH, A. R. KASSANDER T. L. THOMPSON

5/64- 9/65

INTERIOR-OFFICE OF SALINE WATER

GUE 61 1 FIELD 7D,20M, 8D, 8H

MASS INST OF TECHNOL, SCHOOL OF ENGINEERING, CHEMICAL ENGINEERING, MASSACHUSETTS
FUNDAMENTAL STUDIES OF DESALINATION BY FREEZING

T. K. SHERWOOD, P. L. BRIAN, R. E. FISHER C. FRANGOULIS, H. HALES, D. JONES G. PEDERSEN

10/64- 9/65

INTERIOR-OFFICE OF SALINE WATER

GUE 71 1 FIELD 7C, 7D, 8H,11F

BOLT BERANEK AND NEW, MASSACHUSETTS

THE INFLUENCE OF ACOUSTICAL VIBRATIONS ON THE RATE OF DEPOSITION OF DISSOLVED CHEMICAL CONSTITUENTS ON HEATED SURFACES - SCALING -

R. M. FAND, C. M. GOGOS

SW-14-01-0001-376
1/65- 1/66

INTERIOR-OFFICE OF SALINE WATER

GUE 125 FIELD 8H, 5C, 8E

STANFORD RESEARCH INST, MENLO PARK, CALIFORNIA

METHODOLOGY FOR COMPARATIVE ENGINEERING ANALYSIS OF ALTERNATIVE PROCESSES FOR SALINE WATER CONVERSION

R. E. DELARUE, W. H. BREEN, J. M. JONES K. T. SEMRAU

SW-14-01-0001-412
7/64- 7/65

INTERIOR-OFFICE OF SALINE WATER

GUE 126 FIELD 7D, 7C, 7A, 7B

UNIVERSITY OF YORK, UNITED KINGDOM

STUDIES OF CONCENTRATED AQUEOUS ELECTROLYTES AND OF MOLTEN ELECTROLYTES BY INFRARE

R. E. HESTER, J. BATES, K. KRISHNAN C. W. SCAIFE

/66- /

INTERIOR-OFFICE OF SALINE WATER

GUE 127 FIELD 7D, 7C, 7A,20J

FLORIDA STATE UNIV, GRADUATE SCHOOL, CHEMISTRY, FLORIDA

STRUCTURE IN SOLVENTS AND CONCENTRATED SOLUTIONS

G. R. CHOPPIN, G. BROOKS, J. DOWNEY

/66- /

INTERIOR-OFFICE OF SALINE WATER

GUE 128 FIELD 7C, 7A, 7D, 7B

MIDWEST RES INST KAN, MISSOURI

RESEARCH ON MECHANISM OF MASS TRANSFER THROUGH A LIQUID INTERFACE

A. E. VANDEGRIFT, T. BATH, W. E. CLARK R. L. HUGHES, F. V. MORRISS

SW-14-01-0001-656
/66- /

INTERIOR-OFFICE OF SALINE WATER

GUE 129 FIELD 7C, 7A,20J, 7B

PURDUE UNIVERSITY, GRADUATE SCHOOL, CHEMISTRY, INDIANA

INTERMOLECULAR FORCES AND THE LIQUID STATE

C. R. MUELLER
/66- /
INTERIOR-OFFICE OF SALINE WATER

GUE 131 FIELD 7C, 7A, 7D

THOMPSON RAMO WOOLDRGE, CALIFORNIA

A STUDY OF THE EFFECT OF SURFACE POTENTIAL ON SCALE FORMATION

H. P. SILVERMAN, F. ANSON, C. R. TOWNSEND

/66- /

INTERIOR-OFFICE OF SALINE WATER

GUE 133 FIELD 7D, 7B

SYRACUSE UNIVERSITY, GRADUATE SCHOOL, CHEMISTRY, NEW YORK

VOLUME CHANGES ON MIXING SOLUTIONS OF ELECTROLYTES

H. E. WIRTH, W. MILLS
/66- /

INTERIOR-OFFICE OF SALINE WATER

GUE 134 FIELD 7D,11F

UNIV OF PENNSYLVANIA, GRADUATE SCHOOL, CHEMISTRY, PENNSYLVANIA

ELLIPSOMETRIC STUDIES OF PASSIVATION, WITH SPECIAL REFERENCE TO THE ESSENTIAL ANIONIC CONSTITUENTS OF SALINE WATER

. NONE

/66- /

INTERIOR-OFFICE OF SALINE WATER

GUE 135 FIELD 7C, 7D,11B,11G

WESTINGHOUSE RES LAB, PENNSYLVANIA

REVERSE OSMOSIS MEMBRANES CONTAINING GRAPHITIC OXIDE

D. BERG, L. FLOWERS, D. LEWIS

/66- /

INTERIOR-OFFICE OF SALINE WATER

GUE 136 FIELD 7D, 5A

WESTINGHOUSE RES LAB, PENNSYLVANIA

INVESTIGATION OF DESALINATION BY FREEZING

J. D. HARRISON, D. R. HAMILTON D. E. HARRISON, R. G. SEIDENSTICKER

/66- /

INTERIOR-OFFICE OF SALINE WATER

GUJ 25 FIELD 7C,21D, 7D, 7B

MELPAR INC, VIRGINIA

FEASIBILITY STUDY RELATIVE TO THE CONVERSION OF ANTHRACITE COAL TO ACETYLENE

N. R. LAINE, K. C. CHANNABASAPPA J. H. CHAUDET, H. E. PODALL

/66- /

INTERIOR-OFFICE OF COAL RESEARCH

GUJ 26 FIELD 21D, 7D,10B

KELLOGG MW CO NEW MARK, NEW JERSEY

COMBINED DESALINATION AND POWER-GENERATION BASED ON COAL ENERGY

G. T. SKAPERDAS, W. H. HEFFNER

/66- /

INTERIOR-OFFICE OF COAL RESEARCH

GUN 1609 FIELD 7D, 8H, 7B

STATE, FISH + GAME DPT, CHINO, CALIFORNIA

ANALYSIS OF WATER CHEMISTRY

M. J. WHALLS, A. W. FAST, L. W. MILLER

INT-FA-F-23-R-2-1
7/65- 6/66

INTERIOR-BUREAU SPORT FISH WLIFE-FED AID

GUW 81 FIELD 7D,20J

UNIV OF NEW HAMPSHIRE, GRADUATE SCHOOL, CHEMISTRY, NEW HAMPSHIRE

ATOMIC FLUORESCENCE SPECTROSCOPY

D. W. ELLIS

INT-WR-A-003-NH
/66- /

INTERIOR-OFFICE OF WATER RESOURCES

GUW 83 FIELD 7D

VIRGINIA POLYTECH INST, SCHOOL OF ENGINEERING, CHEMICAL ENGINEERING, VIRGINIA

MULTICOMPONENT MASS TRANSPORT IN IONIC SYSTEMS

G. B. WILLS

INT-WR-A-002-VA
/66- /

INTERIOR-OFFICE OF WATER RESOURCES

08. Earth Sciences and Oceanography

GPE 392 3 FIELD 8D, 8H, 8C, 7B

YALE UNIVERSITY, GRADUATE SCHOOL, GEOLOGY, CONNECTICUT

TRACE ELEMENTS IN SEA WATER

K. K. TUREKIAN

AT-30-1-2912
12/64-11/65

AEC-BIOLOGY + MEDICINE

GPE 492 4 FIELD 7C, 7D, 8D, 8C

TEXAS A + M UNIVERSITY, GRADUATE SCHOOL, METEOROL + OCEANOGRAPH, TEXAS

THE CHEMISTRY AND ANALYSIS OF TRACE METALS IN SEA WATER

D. W. HOOD, D. C. BURRELL, D. HEDGES
E. ISBELL, L. M. JEFFREY, J. F. SLOWEY
T. THOMAS

AT-40-1-2799
2/65- 1/66

AEC-BIOLOGY + MEDICINE

GPE 993 FIELD 8D, 8H, 7B

UNIVERSITY OF ALASKA, GRADUATE SCHOOL, INST OF MARINE SCIENCE, ALASKA

PATHWAYS OF TRACE ELEMENTS IN ARCTIC LAKE ECOSYSTEMS

R. J. BARSDATE

AT-04-3-310-4
4/65- 4/66

AEC-BIOLOGY + MEDICINE

GPE 1001 FIELD 8C

UNIV OF CAL-LA JOLLA, GRADUATE SCHOOL, OCEANOGRAPHY, CALIFORNIA

RADIOCARBON MEASUREMENTS IN THE PACIFIC AND INDIAN OCEANS

W. S. WOOSTER, G. S. BIEN

AT-11-1-34
2/65- 1/66

AEC-BIOLOGY + MEDICINE

GPF 288 3 FIELD 8D, 8G, 7B

COLUMBIA UNIVERSITY, GRADUATE SCHOOL, GEOLOGY, NEW YORK

ALTERATION AND MINERALIZATION OF PRIMARY URANIUM DEPOSITS

P. F. KERR

AT-30-1-1936
4/65- 3/66

AEC-DIVISION OF PHYSICAL RES

GPF 427 3 FIELD 8D, 8G,20J, 7D

COLUMBIA UNIVERSITY, GRADUATE SCHOOL, GEOLOGY, NEW YORK

ISOTOPIC GEOCHEMISTRY

J. L. KULP, W. BROECKER, F. D. ECKELMANN
J. ENGELS, R. B. FORBES, P. W. GAST
P. MISCH

AT-30-1-1669
3/65- 2/66

AEC-DIVISION OF PHYSICAL RES

GSB 665 2 FIELD 3A, 7C, 7A, 7D

UNIV OF CAL-LA JOLLA, GRADUATE SCHOOL, CHEMISTRY, CALIFORNIA

SYNTHESIS OF ORGANIC COMPOUNDS UNDER PRIMITIVE EARTH CONDITIONS

S. L. MILLER, M. PARRIS

NSF-GB-2687
7/64- 6/65

NSF-BIOLOGICAL + MEDICAL SCIENCES DIVISI

GSB 1024 1 FIELD 8D

AMER GEOGRAPHICAL SOC, NEW YORK

LATE PLEISTOCENE PHYTOGEOGRAPHY OF CENTRAL AND SOUTHERN CHILE

C. J. HEUSSER

NSF-GB-2838
8/65- 8/66

NSF-BIOLOGICAL + MEDICAL SCIENCES DIVISI

GSB 1393 1 FIELD 8D

WESTERN WASHINGTON ST, UNDERGRADUATE SCHOOL, GEOLOGY, WASHINGTON

PHYLOGENY OF FUSULINIDEA OF SOUTHEAST AND EASTCENTRAL ARIZONA

C. A. ROSS

NSF-GB-2934
9/65- 9/66

NSF-BIOLOGICAL + MEDICAL SCIENCES DIVISI

GSB 2198 2 FIELD 8D, 8C

US, SMITHSONIAN INST, DIST OF COLUMBIA

OSTRACODA OF THE INDIAN OCEAN

R. H. BENSON

NSF-GB-2957
9/65- 9/66

NSF-BIOLOGICAL + MEDICAL SCIENCES DIVISI

GSB 2862 FIELD 8C

UNIV OF TEXAS, AUSTIN, GRADUATE SCHOOL, INST OF MARINE SCIENCE, TEXAS

SUPPORT OF BOAT OPERATIONS

P. L. PARKER

NSF-GB-3496
4/65- 3/66

NSF-BIOLOGICAL + MEDICAL SCIENCES DIVISI

GSB 3900 3 FIELD 8D

YALE UNIVERSITY, GRADUATE SCHOOL, GEOLOGY, CONNECTICUT

PALEONTOLOGY AND STRATIGRAPHY OF THE LOWER CRETACEOUS DEPOSITS OF THE BIGHORN BASIN REGION

J. H. OSTROM, J. +. OSTROM

NSF-GB-1015
6/65- 6/66

NSF-BIOLOGICAL + MEDICAL SCIENCES DIVISI

GSB 3912 5 FIELD 8D, 8F, 8G

UNIV OF CAL-L. A., GRADUATE SCHOOL, ZOOLOGY, CALIFORNIA

THE EARLY PERMIAN VERTEBRATE FAUNA OF THE FOUR CORNERS AREA OF THE UNITED STATES

P. P. VAUGHN

NSF-GB-1014
6/65- 6/66

NSF-BIOLOGICAL + MEDICAL SCIENCES DIVISI

GSB 3944 4 FIELD 8D

BRIGHAM YOUNG UNIV, GRADUATE SCHOOL, GEOLOGY, UTAH

LOWER PALEOZOIC PORIFERA OF NORTH AMERICA

J. K. RIGBY

NSF-GB-1303
7/65- 7/66

NSF-BIOLOGICAL + MEDICAL SCIENCES DIVISI

GSE 610 1 FIELD 13B

UNIVERSITY OF ILLINOIS, SCHOOL OF ENGINEERING, CIVIL ENGINEERING, ILLINOIS

ENGINEERING PROPERTIES OF A SOIL CONTAINING COLLOIDAL ORGANIC MATERIAL

T. H. THORNBURN, T. K. LIU

NSF-GK-23
9/65- 9/66

NSF-ENGINEERING SCIENCES DIVISION

GSP 341 3 FIELD 8D, 8G

UNIV OF WISCONSIN, GRADUATE SCHOOL, GEOLOGY, WISCONSIN

BIOSTRATIGRAPHY OF SELECTED PALEOZOIC AND CENOZOIC ROCKS

D. L. CLARK

NSF-GP-3505
10/64-10/65

NSF-PHYSICAL SCIENCES DIVISION

GSP 1143 2 FIELD 8D, 8G, 8C

MICHIGAN STATE UNIV, GRADUATE SCHOOL, GEOLOGY, MICHIGAN

SIGNIFICANCE OF SPORES AND OTHER DETRITUS IN RECENT SEDIMENTS

A. T. CROSS, A. +. CROSS

NSF-GP-3550
10/64-10/65

NSF-PHYSICAL SCIENCES DIVISION

GSP 1209 2 FIELD 7D, 7B

LEHIGH UNIVERSITY, GRADUATE SCHOOL, CHEMISTRY, PENNSYLVANIA

SURFACE CHEMISTRY OF ICE NUCLEATION

A. C. ZETTLEMOYER

NSF-GP-1590
7/65- 7/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1354 1 FIELD 8D, 8G

CAL INST OF TECHNOLOGY, GRADUATE SCHOOL, GEOLOGICAL SCIENCES, CALIFORNIA

HISTORY AND STRUCTURAL RELATIONS OF LITTLE CHIEF GRANITE PORPHRY STOCK, CALIFORNIA

A. L. ALBEE, S. D. MCDONELL

NSF-GP-2807
7/65- 7/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1355 1 FIELD 7D, 8D, 8G, 7B

CAL INST OF TECHNOLOGY, GRADUATE SCHOOL, GEOLOGICAL SCIENCES, CALIFORNIA

ION-EXCHANGE METHOD OF SILICATE ANALYSIS

R. P. SHARP

NSF-GP-3693
10/64-11/65

NSF-PHYSICAL SCIENCES DIVISION

GSP 1362 2 FIELD 8K, 8G

UNIV OF CAL-BERKELEY, GRADUATE SCHOOL, GEOLOGY & GEOPHYSICS, CALIFORNIA

ELASTIC WAVES TRANSMITTED THROUGH THE EARTHS INTERIOR

B. A. BOLT, P. BYERLY

NSF-GP-1922
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1371 1 FIELD 8N, 8G

UNIV OF CAL-LA JOLLA, GRADUATE SCHOOL, OCEANOGRAPHY, CALIFORNIA

DEEP ANOMALIES IN ELECTRICAL CONDUCTIVITY

V. VACQUIER

NSF-GP-2810
7/65- 7/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1374 2 FIELD 8D, 8G, 8C, 7B

UNIV OF CAL-LA JOLLA, GRADUATE SCHOOL, OCEANOGRAPHY, CALIFORNIA

ISOTOPIC OCEANOGRAPHY AND GEOCHEMISTRY

H. CRAIG

NSF-GP-3347
8/65- 8/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1445 2 FIELD 13B, 8D, 8F, 8G

JOHNS HOPKINS UNIV, GRADUATE SCHOOL, GEOGRAPHY, MARYLAND

RESEARCH ON SAPROLITE AND RELATED LATERITIC SOILS ALONG THE ATLANTIC SEABOARD

C. B. HUNT

NSF-GP-2071
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1477 1 FIELD 8D, 8G,20L,20A

UNIV OF NEW HAMPSHIRE, GRADUATE SCHOOL, GEOLOGY, NEW HAMPSHIRE

VECTORIAL GROWTH RATES OF CRYSTALS GROWN IN HIGH GRAVITATIONAL FIELDS AND ULTRASONIC IRRADIATION

C. J. SCHNEER
NSF-GP-2064
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1526 1 FIELD 8K, 8G

ST. LOUIS UNIVERSITY, SCHOOL OF ENGINEERING, GEOPHYS + GEOPHYS ENGR, MISSOURI

P AND S WAVE PARAMETERS IN THE UPPER MANTLE

O. W. NUTTLI, W. STANDER

NSF-GP-1912
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1577 1 FIELD 13B, 8G, 8H, 4B

WOODS HOLE OCEANOGRAPH, MASSACHUSETTS

THE SALT MARSH ENVIRONMENT

A. C. RADFIELD, A. *. RADFIELD

NSF-GP-2042
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1628 1 FIELD 8D, 8G

UNIV OF CAL-SANTA BARB, UNDERGRADUATE SCHOOL, GEOLOGY, CALIFORNIA

MINERALOGY, CHEMISTRY AND FIELD ASSOCIATIONS OF PYROXENE ANDESITE AT MT. HOOD AND MT. RAINIER

W. S. WISE, C. A. HUPSON
NSF-GP-2920
7/65- 7/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1746 1 FIELD 8D

COLORADO SCH OF MINES, SCHOOL OF ENGINEERING, GEOL + GEOL ENGIN SCI, COLORADO

FOSSIL ALGAE FROM GUATEMALA

J. H. JOHNSON

NSF-GP-3335
8/65- 8/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1772 FIELD 8D, 8H, 4B, 8C

UNIVERSITY OF MIAMI, DIVISION OF RESEARCH, MARINE LAB, FLORIDA

OCEANOGRAPHIC AND HYDROLOGICAL STUDIES WITH NATURAL TRITIUM

G. OSTLUND

NSF-GP-3353
8/64- 8/65

NSF-PHYSICAL SCIENCES DIVISION

GSP 1868 1 FIELD 8G

UNIVERSITY OF CHICAGO, GRADUATE SCHOOL, GEOPHYSICAL SCIENCES, ILLINOIS

MICROANALYSIS AND CRYSTALLOGRAPHY OF MINERALS

J. V. SMITH

NSF-GP-3450
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1880 1 FIELD 8D, 8G, 8C

LEHIGH UNIVERSITY, GRADUATE SCHOOL, GEOLOGY, PENNSYLVANIA

GEOCHEMICAL COMPARISON OF CARBONATE SEDIMENTATION IN CARBONATE AND NON-CARBONATE ENVIRONMENTS

K. E. CHAVE

NSF-GP-3505
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1891 1 FIELD 8D, 8G, 8C

UNIV OF CAL-LA JOLLA, GRADUATE SCHOOL, OCEANOGRAPHY, CALIFORNIA

STRATIGRAPHIC STUDY OF RADIOLARIA IN CENOZOIC SEDIMENTS

W. R. RIEDEL

NSF-GP-3354
8/65- 8/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1897 1 FIELD 8N, 8K, 8G

UNIVERSITY OF HAWAII, GRADUATE SCHOOL, GEOPHYSICS, HAWAII

THE UPPER MANTLE IN THE WESTERN PACIFIC

G. P. WOOLLARD, W. M. ADAMS
A. S. FURUMOTO, D. WALKER

NSF-GP-3473
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1920 1 FIELD 8D, 8G,18A, 7B

UNIV OF CAL-LA JOLLA, GRADUATE SCHOOL, EARTH SCIENCES, CALIFORNIA

STRONTIUM ISOTOPES, RARE GASES AND RADIOACTIVE ELEMENTS IN PERIDOTITES, ECLOGITES AND ROCKS RELATED TO THE UPPER MANTLE

V. R. MURTHY

NSF-GP-3448
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1932 1 FIELD 8D, 8N

ST. LOUIS UNIVERSITY, SCHOOL OF ENGINEERING, GEOPHYS + GEOPHYS ENGR, MISSOURI

PALEOMAGNETIC INVESTIGATIONS OF SOME PRECAMBRIAN ROCKS OF NORTH AMERICA

S. A. VINCENZ

NSF-GP-3463
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1959 FIELD 8D, 8F, 8C

UNIVERSITY OF MIAMI, DIVISION OF RESEARCH, MARINE LAB, FLORIDA

FLORIDA CORAL REEF STUDIES

J. E. HOFFMEISTER

NSF-GP-3604
10/64-10/65

NSF-PHYSICAL SCIENCES DIVISION

GSP 1960 1 FIELD 8G

UNIVERSITY OF MICHIGAN, GRADUATE SCHOOL, GEOLOGY + MINERALOGY, MICHIGAN

PETROGENETIC STUDIES OF CARBONATITES

E. W. HEINRICH

NSF-GP-3449
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1962 1 FIELD 8D, 8G

PENNSYLVANIA ST UNIV, SCHOOL OF MINERAL IND, GEOCHEM + MINERALOGY, PENNSYLVANIA

THE ORIGIN OF PLUTONIC IGNEOUS ROCK SERIES

G. V. GIBBS, P. J. WYLLIE

NSF-GP-3440
9/65- 8/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1975 1 FIELD 8D, 8F, 8N, 8G

PRINCETON UNIVERSITY, GRADUATE SCHOOL, GEOLOGY, NEW JERSEY

RESEARCH IN ROCK MAGNETISM

W. E. BONINI, R. B. HARGRAVES

NSF-GP-3491
9/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 1984 FIELD 8G, 8C

UNIVERSITY OF MIAMI, DIVISION OF RESEARCH, MARINE LAB, FLORIDA

SUPPORT OF THE PLANNING OF THE JOINT OCEANOGRAPHIC INSTITUTIONS DEEP-EARTH SAMPLING JOIDES

F. F. KOCZY

NSF-GP-3575
10/64-10/65

NSF-PHYSICAL SCIENCES DIVISION

GSP 2069 1 FIELD 8H

NATL ACAD SCI NAT RE, DIST OF COLUMBIA

SUPPORT OF THE COMMITTEE ON WATER

E. F. COOK

NSF-GP-TO-88-C-31
10/65- 9/66

NSF-PHYSICAL SCIENCES DIVISION

GSP 2072 FIELD 7A,20M, 8D, 8G

OBERLIN COLLEGE, GRADUATE SCHOOL, GEOLOGY, OHIO

VAPORIZATION AND CONDENSATION OF INORGANIC COMPOUNDS - PROBLEMS OF PETROGENESIS

R. C. SCHOONMAKER, J. L. POWELL

NSF-GP-3709
11/64-11/65

NSF-PHYSICAL SCIENCES DIVISION

GSP 2085 2 FIELD 8G

MASS INST OF TECHNOL, GRADUATE SCHOOL, GEOLOGY + GEOPHYSICS, MASSACHUSETTS

A THEORETICAL AND EXPERIMENTAL STUDY OF BRITTLE BEHAVIOR OF ROCKS

W. F. BRACE

NSF-GP-1470
7/65- 6/66

NSF-PHYSICAL SCIENCES DIVISION

GSS 192 FIELD 8C

UNIV OF ROCHESTER, GRADUATE SCHOOL, NEW YORK

AMERICAN OCEANOGRAPHY BEFORE 1860

E. L. TOWLE

NSF-GS-559
7/64- 1/65

NSF-SOCIAL SCIENCES DIVISION

GSS 312 FIELD 8D

UNIV OF TEXAS, AUSTIN, GRADUATE SCHOOL, TEXAS

PALEOECOLOGY OF THE AMISTAD RESERVOIR AREA

E. B. JELKS

NSF-GS-667
1/65- 1/66

NSF-SOCIAL SCIENCES DIVISION

GSS 320 1 FIELD 8D

UNIV OF CAL-BERKELEY, GRADUATE SCHOOL, CALIFORNIA

PALEONTOLOGY IN THE PHILOSOPHICAL TRANSACTIONS - 1665-1800

C. L. CAMP

NSF-GS-585
8/64- 8/65

NSF-SOCIAL SCIENCES DIVISION

GUN 1665 FIELD 7D, 8D, 8H, 7B

STATE, FISH-GAME-PARKS, DENVER, COLORADO

DETERMINATION OF THE CHEMICAL AND PHYSICAL CHARACTERISTICS OF THE UPPER GUNNISON RIVER DRAINAGE

W. J. WILTZIUS

INT-FA-F-31-R-2-2
7/65- 6/66

INTERIOR-BUREAU SPORT FISH WLIFE-FED AID

GUW 6 FIELD 8H, 8G

WASHINGTON STATE UNIV, SCHOOL OF ENGINEERING, WASHINGTON

METHODS OF INVESTIGATING GROUND-WATER RECHARGE NEAR THE MARGINS OF PLATEAU BASALTS

J. W. CROSBY, H. D. COPP, J. *. CROSBY
J. F. ORSBORN

INT-WR-A-007-WASH
2/65- 9/65

INTERIOR-OFFICE OF WATER RESOURCES

GUW 6 1 FIELD 8H, 8G

WASHINGTON STATE UNIV, SCHOOL OF ENGINEERING, WASHINGTON

METHODS OF INVESTIGATING GROUND-WATER RECHARGE NEAR THE MARGINS OF PLATEAU BASALTS

J. W. CROSBY, H. D. COPP, J. *. CROSBY
J. F. ORSBORN

INT-WR-A-007-WASH
10/65- 9/66

INTERIOR-OFFICE OF WATER RESOURCES

GUW 10 FIELD 13B, 7C, 7D, 8G

UNIVERSITY OF ILLINOIS, SCHOOL OF ENGINEERING, CIVIL ENGINEERING, ILLINOIS

EFFECT OF ORGANIC COMPOUNDS ON THE ION-EXCHANGE ADSORPTION OF RADIOACTIVE CATIONS ON CLAYS

B. B. EWING, B. T. KOWN

INT-WR-A-004-ILL
2/65- 6/65

INTERIOR-OFFICE OF WATER RESOURCES

GUW 14 FIELD 13B, 8N, 8F, 8K

MICHIGAN STATE UNIV, GRADUATE SCHOOL, GEOLOGY, MICHIGAN

GROUNDWATER RECHARGE, DYNAMICS OF GROUNDWATER FLOW SYSTEMS AND METHODS OF DELINEATING GLACIAL DRIFT AQUIFERS

W. J. HINZE, A. ABDELWAHID, D. SANDERSON
P. A. TRAVIS, M. WHEELER

INT-WR-A-001-MICH
4/65- 9/65

INTERIOR-OFFICE OF WATER RESOURCES

GUW 19 FIELD 13G,13B

MICHIGAN STATE UNIV, SCHOOL OF AGRICULTURE, SOIL SCIENCE, MICHIGAN

WATER MOVEMENT IN UNSATURATED SOILS
R. J. KUNZE, A. ERICKSON

INT-WR-A-003-MICH
4/65- 9/65

INTERIOR-OFFICE OF WATER RESOURCES

GUW 20 FIELD 8H

STATE, WATER SURV CHGO, ILLINOIS

OCCURRENCE OF NITRATE IN WELL WATERS

T. E. LARSON, L. H. HENLEY

INT-WR-A-005-ILL
2/65- 6/66

INTERIOR-OFFICE OF WATER RESOURCES

GUW 26 FIELD 13B, 8F, 8H

MICHIGAN STATE UNIV, GRADUATE SCHOOL, MICHIGAN

GROUND WATER AND BEDROCK SURFACE DELINEATIONS IN SOUTHEASTERN MICHIGAN

A. J. MOZULA, A. *. MOZOLA
INT-WR-A-002-MICH
4/65- 9/65

INTERIOR-OFFICE OF WATER RESOURCES

GUW 27 FIELD 13B, 8H

WASHINGTON STATE UNIV, SCHOOL OF ENGINEERING, SANITARY ENGINEERING, WASHINGTON

EVALUATION OF FACTORS AFFECTING STREAM SELF-PURIFICATION
D. E. PROCTOR

INT-WR-A-008-WASH
2/65- 6/65

INTERIOR-OFFICE OF WATER RESOURCES

GUW 31 FIELD 21D, 7D, 8D, 8H

OHIO STATE UNIVERSITY, SCHOOL OF ENGINEERING, CHEMICAL ENGINEERING, OHIO

DEVELOPMENT OF A NATURAL LABORATORY FOR THE STUDY OF ACID MINE DRAINAGE

E. E. SMITH, W. H. PERLOFF, K. S. SHUMATE

INT-WR-A-001-OHIO
1/65- 6/65

INTERIOR-OFFICE OF WATER RESOURCES

GUW 34 FIELD 13G, 8H,12A, 8E

UNIVERSITY OF ARKANSAS, SCHOOL OF ENGINEERING, CIVIL ENGINEERING, ARKANSAS

QUANTITATIVE ANALYSIS OF STREAM FLOW RATE EXTREMES

J. C. WARD, L. R. HEIPLE

INT-WR-A-003-ARK
7/65- 6/66

INTERIOR-OFFICE OF WATER RESOURCES

GUW 47 FIELD 8H

TEXAS A + M UNIVERSITY, GRADUATE SCHOOL, METEOROL + OCEANOGRAPH, TEXAS

RESEARCH ON THE MORPHOLOGY OF PRECIPITATION AND RUNOFF IN TEXAS

R. A. CLARK, J. CANGLOSE, G. L. HUEBNER V. E. MOYER

INT-OWR-A-002-TEX
/66- /

INTERIOR-OFFICE OF WATER RESOURCES

GUW 51 FIELD 8C

UNIV OF CAL-L. A., GRADUATE SCHOOL, METEOROLOGY, CALIFORNIA

RELATIONSHIP BETWEEN THE ANOMOLIES OF THE PACIFIC OCEAN TEMPERATURE AND THOSE OF CALIFORNIA RAINFALL

J. BJERKNES, J. *. BJERKNES

INT-OWR-A-016-CAL
/66- /

INTERIOR-OFFICE OF WATER RESOURCES

GUW 60 FIELD 13B, 8H,20D

UNIV OF CAL-L. A., SCHOOL OF ENGINEERING, ENGINEERING, CALIFORNIA

PROBLEMS IN WATER TRANSPORT THROUGH POROUS MEDIA

R. L. PERRINE, R. *. PERRINE

INT-OWR-A-015-CAL
/66- /

INTERIOR-OFFICE OF WATER RESOURCES

GUW 73 FIELD 8D, 8H, 8G

SOUTH DAKOTA ST UNIV, SCHOOL OF ENGINEERING, WATER RESOURCES, SOUTH DAKOTA

DETERMINATION OF POROSITY AND PERMEABILITY OF SELECTED SANDSTONE AQUIFERS OF SOUTH DAKOTA

J. P. GRIES, J. *. GRIES

INT-WR-A-004-SDAK
/66- /

INTERIOR-OFFICE OF WATER RESOURCES

GUW 79 FIELD 8H

UNIV OF NEW HAMPSHIRE, GRADUATE SCHOOL, GEOLOGY, NEW HAMPSHIRE

RELATIONSHIP OF GROUND WATER YIELD FROM DRILLED WELLS AND TYPES OF BEDROCK IN NEW HAMPSHIRE

G. W. STEWART

INT-WR-A-001-NH
/66- /

INTERIOR-OFFICE OF WATER RESOURCES

GUW 84 FIELD 8H

VIRGINIA POLYTECH INST, SCHOOL OF ENGINEERING, GEOLOGICAL SCIENCES, VIRGINIA

EVALUATION OF GEOHYDROLOGIC FACTORS IN ESTIMATION OF RUNOFF COEFFICIENTS IN WATERSHEDS EMBRACING MULTIPLE GEOLOGIC TERRANES

B. N. COOPER

INT-WR-A-004-VA
/66- /

INTERIOR-OFFICE OF WATER RESOURCES

09. Electronics and Electrical Engineering

GSE 293 2 FIELD 9+, 9A

UNIVERSITY OF UTAH, SCHOOL OF ENGINEERING, ELECTRICAL ENGINEERING, UTAH

MICROWAVE DEVICES

R. W. GROW, C. H. DURNEY, C. C. JOHNSON
NSF-GP-843
9/65- 9/66

NSF-ENGINEERING SCIENCES DIVISION

GSE 587 1 FIELD 9+,12A, 5C, 9C

UNIVERSITY OF MICHIGAN, SCHOOL OF ENGINEERING, ELECTRICAL ENGINEERING, MICHIGAN

COMPUTER OPTIMAZATION OF CIRCUIT DESIGN

B. F. BARTON, A. B. MACNEE

NSF-GK-25
9/65- 9/66

NSF-ENGINEERING SCIENCES DIVISION

GSE 598 1 FIELD 9+,12A, 9C

PURDUE UNIVERSITY, SCHOOL OF ENGINEERING, ELECTRICAL ENGINEERING, INDIANA

NONLINEAR CIRCUITS AND SYSTEMS

B. J. LEON

NSF-GK-26
8/65- 8/66

NSF-ENGINEERING SCIENCES DIVISION

GSE 601 1 FIELD 9+, 9C, 9A,11G

PENNSYLVANIA ST UNIV, SCHOOL OF ENGINEERING, ELECTRICAL ENGINEERING, PENNSYLVANIA

DIRECT SEMICONDUCTOR GENERATION OF MICROWAVE POWER

H. A. ATWATER

NSF-GK-18
8/65- 8/66

NSF-ENGINEERING SCIENCES DIVISION

GSE 630 1 FIELD 9+,12A

UNIVERSITY OF ILLINOIS, SCHOOL OF ENGINEERING, ELECTRICAL ENGINEERING, ILLINOIS

SEQUENTIAL CIRCUIT THEORY

S. SESHU

NSF-GK-36
9/65- 9/66

NSF-ENGINEERING SCIENCES DIVISION

11. Materials

GPF 336 3 FIELD 11F,11G, 5A,20L

CORNELL UNIVERSITY, SCHOOL OF ENGINEERING, PHYSICS, NEW YORK

HARD SUPERCONDUCTING MATERIALS

W. W. WEBB, W. GEY, J. SILCOX

AT-30-1-3029
6/65- 5/66

AEC-DIVISION OF PHYSICAL RES

GPF 397 1 FIELD 7C, 7D,20M,11B

RENSSELAER POLYTC INST, SCHOOL OF ENGINEERING, MATERIALS SCIENCE, NEW YORK

DIFFUSION AND ELECTRICAL CONDUCTIVITY IN CRYSTALLINE AND GLASSY CALCIUM SILICATES

J. D. MACKENZIE, M. SCHWARTZ

AT-30-1-3340
3/65- 2/66

AEC-DIVISION OF PHYSICAL RES

GPF 496 3 FIELD 11F,13H,11G,20C

CAL INST OF TECHNOLOGY, SCHOOL OF ENGINEERING, MATERIALS SCIENCE, CALIFORNIA

FUNDAMENTAL RESEARCH ON MATERIALS OF INTEREST TO NUCLEAR ENGINEERING

P. DUWEZ, K. DASGUPTA, R. H. WILLENS

AT-04-3-221
6/65- 5/66

AEC-DIVISION OF PHYSICAL RES

GPF 535 3 1 FIELD 7A,20M,11B,11C

MASS INST OF TECHNOL, SCHOOL OF ENGINEERING, METALLURGY, MASSACHUSETTS

BASIC RESEARCH IN CERAMICS AND NONCRYSTALLINE SYSTEMS

W. D. KINGERY, R. L. COBLE, M. GOLDSTEIN J. H. HEASLEY, B. J. WUENSCH

AT-30-1-2574
9/64- 8/65

AEC-DIVISION OF PHYSICAL RES

GPF 874 FIELD 20M,11F,13H,11G

UNIVERSITY OF ARIZONA, GRADUATE SCHOOL, PHYSICS, ARIZONA

HIGH TEMPERATURE ANNEALS OF DEFECTS QUENCHED IN METALS

R. M. EMRICK

AT-11-1-1456
3/65- 2/66

AEC-DIVISION OF PHYSICAL RES

GPF 876 FIELD 11F,13H,11G,20C

CORNELL UNIVERSITY, SCHOOL OF ENGINEERING, ENGIN PHYS + MAT SCI, NEW YORK

DEFECTS IN METAL CRYSTALS

R. W. BALLUFFI, D. N. SEIDMAN
R. W. SIEGEL

AT-30-1-3504
2/65- 1/66

AEC-DIVISION OF PHYSICAL RES

GPF 881 FIELD 20M,11F,13H,11G

UNIVERSITY OF FLORIDA, SCHOOL OF ENGINEERING, METAL ENGIN + MAT SCI, FLORIDA

NEUTRON IRRADIATION OF COPPER-BASED ALLOYS WITH MARTENSITIC TRANSFORMATIONS

R. E. HUMMEL, J. J. HREN

AT-40-1-3395
5/65- 4/66

AEC-DIVISION OF PHYSICAL RES

GPF 894 FIELD 11C,11F,11G,20L

UNIVERSITY OF OKLAHOMA, SCHOOL OF ENGINEERING, METALLURGICAL ENGIN, OKLAHOMA

THE EFFECTS OF SURFACE COATINGS ON THE PLASTIC DEFORMATION OF METAL SINGLE CRYSTALS

R. J. BLOCK

AT-40-1-3401
5/65- 5/66

AEC-DIVISION OF PHYSICAL RES

GPF 898 FIELD 7C, 7D, 7A,20M

COLUMBIA UNIVERSITY, SCHOOL OF ENGINEERING, CHEMICAL ENGINEERING, NEW YORK

HIGH TEMPERATURE AND CRITICAL PROPERTIES OF ALKALI METALS

C. F. BONILLA, G. OSTER, I. L. SILVER

AT-30-1-2660
6/65- 5/66

AEC-DIVISION OF PHYSICAL RES

GSE 582 1 FIELD 11F,11G, 7B

LEHIGH UNIVERSITY, SCHOOL OF ENGINEERING, METALLURGICAL ENGIN, PENNSYLVANIA

SOLIDIFICATION, STRUCTURE AND PROPERTIES OF EUTECTIC ALLOYS

R. W. KRAFT

NSF-GP-3199
9/65- 9/66

NSF-ENGINEERING SCIENCES DIVISION

GSE 588 1 FIELD 11B,11G,20K

CORNELL UNIVERSITY, SCHOOL OF ENGINEERING, CIVIL ENGINEERING, NEW YORK

FRACTURE PROCESSES OF CONCRETE

G. WINTERS, F. SLATE

NSF-GK-16
8/65- 8/66

NSF-ENGINEERING SCIENCES DIVISION

GSE 643 1 FIELD 7A, 7D,11B,11F

UNIV OF PENNSYLVANIA, GRADUATE SCHOOL, CHEMISTRY, PENNSYLVANIA

THE MOLECULAR MECHANISM OF CORROSION

J. O. BOCKRIS

NSF-GK-40
9/65- 9/66

NSF-ENGINEERING SCIENCES DIVISION

GUE 24 2 FIELD 7C, 7D,11G,20J

MASS INST OF TECHNOL, SCHOOL OF ENGINEERING, CHEMICAL ENGINEERING, MASSACHUSETTS

RESEARCH ON EXPANDED GLASSY POLYMERS AND POLYELECTROLYTE COMPLEXES AS REVERSE OSMOSIS AND ION-SELECTIVE MEMBRANES

W. R. VIETH, R. F. BADDOUR, A. S. DOUGLAS S. M. FLEMING, C. FRANGOULIS, M. FREEMAN D. JONES

1/65-12/65

INTERIOR-OFFICE OF SALINE WATER

12. Mathematical Sciences

GSE 592 1 FIELD 12A,13M

STATE UNIV N Y BUFFALO, SCHOOL OF ENGINEERING, NEW YORK

DYNAMICAL CHARACTERISTICS OF LINEAR DISORDERED SYSTEMS

T. T. SOONG
NSF-GK-17
9/65- 9/66

NSF-ENGINEERING SCIENCES DIVISION

GSM 25 3 FIELD 12A

UNIV OF CAL-L. A., GRADUATE SCHOOL, MATHEMATICS, CALIFORNIA

FUNCTIONAL ANALYSIS AND APPLICATIONS

R. F. ARENS

NSF-GP-3594
10/64-10/65

NSF-MATHEMATICAL SCIENCES DIVISION

GSM 164 4 FIELD 3C, 4B,12A, 3A

YALE UNIVERSITY, GRADUATE SCHOOL, MATHEMATICS, CONNECTICUT

FUNCTIONAL ANALYSIS

S. KAKUTANI, M. DONSKER, P. GARABEDIAN F. JOHN, H. B. KELLER, J. MOSER R. D. RICHTMYER
NSF-GP-3509
9/65- 9/66

NSF-MATHEMATICAL SCIENCES DIVISION

GSM 194 3 FIELD 12A,20D

STANFORD UNIVERSITY, GRADUATE SCHOOL, MATHEMATICS, CALIFORNIA

ALGORITHMIC METHODS IN NUMERICAL ANALYSIS

J. G. HERRIOT, S. BERGMAN, D. D. FISHER

NSF-GP-4399
5/65- 5/66

NSF-MATHEMATICAL SCIENCES DIVISION

GSM 265 2 FIELD 12A

UNIVERSITY OF ILLINOIS, GRADUATE SCHOOL, MATHEMATICS, ILLINOIS

HOMOTOPY IN HOMEOMORPHISM GROUPS

M. HAMSTROM

NSF-GP-4440
7/65- 6/66

NSF-MATHEMATICAL SCIENCES DIVISION

GSM 280 2 FIELD 12A

PENNSYLVANIA ST UNIV, GRADUATE SCHOOL, MATHEMATICS, PENNSYLVANIA

COMBINATORY LOGIC

H. B. CURRY

NSF-GP-1763
8/65- 8/66

NSF-MATHEMATICAL SCIENCES DIVISION

GSM 294 1 FIELD 12A

RUTGERS THE STATE UNIV, GRADUATE SCHOOL, MATHEMATICS, NEW JERSEY

NOETHERIAN RINGS AND GALOIS THEORY OF RINGS

C. FAITH, R. T. BUMBY, E. R. WILLARD

NSF-GP-4368
6/65- 6/66

NSF-MATHEMATICAL SCIENCES DIVISION

GSM 321 1 FIELD 12A

MASS INST OF TECHNOL, GRADUATE SCHOOL, MATHEMATICS, MASSACHUSETTS

ALGEBRAIC TOPOLOGY AND GEOMETRY

G. W. WHITEHEAD, D. ANDERSON, M. ARTIN E. B. CURTIS, D. M. KAN, B. KOSTANT J. R. MUNKRES

NSF-GP-4362
3/65- 3/66

NSF-MATHEMATICAL SCIENCES DIVISION

GSM 335 2 FIELD 12A

UNIV OF WISCONSIN, GRADUATE SCHOOL, MATHEMATICS, WISCONSIN

HARMONIC ANALYSIS

W. RUDIN

NSF-GP-3483
9/65- 9/66

NSF-MATHEMATICAL SCIENCES DIVISION

GSM 382 1 FIELD 12A, 5C

MASS INST OF TECHNOL, GRADUATE SCHOOL, MATHEMATICS, MASSACHUSETTS

GEOMETRY AND NUMBER THEORY

W. AMBROSE, N. C. ANKENY, A. P. MATTUCK D. G. QUILLEN, I. M. SINGER

NSF-GP-4357
3/65- 3/66

NSF-MATHEMATICAL SCIENCES DIVISION

GSM 384 1 FIELD 12A

MASS INST OF TECHNOL, GRADUATE SCHOOL, MATHEMATICS, MASSACHUSETTS

ALGEBRAIC NUMBERS, NONASSOCIATIVE ALGEBRAS AND RECURSIVE FUNCTIONS

K. IWASAWA

NSF-GP-4361
3/65- 3/66

NSF-MATHEMATICAL SCIENCES DIVISION

GSM 410 2 FIELD 12A

UNIV OF ROCHESTER, GRADUATE SCHOOL, MATHEMATICS, NEW YORK

FUNCTION ALGEBRAS AND COMPACTIFICATIONS

L. GILLMAN, W. COMFORT, R. RAIMI, K. ROSS

NSF-GP-3457
9/65- 9/66

NSF-MATHEMATICAL SCIENCES DIVISION

GSM 447 1 FIELD 12A

UNIVERSITY OF ILLINOIS, GRADUATE SCHOOL, MATHEMATICS, ILLINOIS

TOPICS IN DIFFERENTIAL GEOMETRY

R. P. JERRARD

NSF-GP-3624
10/64-10/65

NSF-MATHEMATICAL SCIENCES DIVISION

GSM 471 1 FIELD 12A

BRANDEIS UNIVERSITY, GRADUATE SCHOOL, MATHEMATICS, MASSACHUSETTS

TOPOLOGICAL METHODS AND DIFFERENTIAL EQUATIONS

J. J. KOHN, H. I. LEVINE, H. ROSSI
R. T. SEELEY
NSF-GP-3421
9/65- 8/66

NSF-MATHEMATICAL SCIENCES DIVISION

GSM 472 1 FIELD 12A

UNIVERSITY OF ILLINOIS, GRADUATE SCHOOL, MATHEMATICS, ILLINOIS

THEORY OF RIEMANN SURFACES

M. HEINS, K. NOSHIRO

NSF-GP-3432
9/65- 8/66

NSF-MATHEMATICAL SCIENCES DIVISION

GSM 486 1 FIELD 12A

BROWN UNIVERSITY, GRADUATE SCHOOL, MATHEMATICS, RHODE ISLAND

GEOMETRIC AND TOPOLOGICAL STRUCTURES OF MANIFOLDS

A. H. CLARK, B. HARRIS

NSF-GP-3446
9/65- 9/66

NSF-MATHEMATICAL SCIENCES DIVISION

GSM 487 1 FIELD 12A

SAN DIEGO STATE COLL, GRADUATE SCHOOL, MATHEMATICS, CALIFORNIA

DISTRIBUTION-FREE STATISTICS

C. B. BELL

NSF-GP-3663
9/65- 9/66

NSF-MATHEMATICAL SCIENCES DIVISION

GSM 489 1 FIELD 12A

UNIVERSITY OF KANSAS, GRADUATE SCHOOL, MATHEMATICS, KANSAS

FUNCTIONAL ANALYSIS

N. ARONSZAJN

NSF-GP-3460
9/65- 9/66

NSF-MATHEMATICAL SCIENCES DIVISION

GSM 490 1 FIELD 12A

UNIV OF SOUTHERN CALIF, GRADUATE SCHOOL, MATHEMATICS, CALIFORNIA

POLYHEDRAL INEQUALITY

H. BUSEMANN

NSF-GP-3458
9/65- 9/66

NSF-MATHEMATICAL SCIENCES DIVISION

GSM 491 1 FIELD 12A, 5C

UNIV OF SOUTHERN CALIF, GRADUATE SCHOOL, MATHEMATICS, CALIFORNIA

COMBINATORIAL ANALYSIS

P. A. WHITE, P. STANEK, A. L. WHITEMAN
K. YAMAMOTO

NSF-GP-3634
9/65- 9/66

NSF-MATHEMATICAL SCIENCES DIVISION

GSM 493 1 FIELD 12A

JOHNS HOPKINS UNIV, GRADUATE SCHOOL, MATHEMATICS, MARYLAND

ALGEBRAIC GEOMETRY AND AUTOMORPHIC VARIETIES

J. IGUSA

NSF-GP-3452
9/65- 9/66

NSF-MATHEMATICAL SCIENCES DIVISION

GSM 494 1 FIELD 12A

PRINCETON UNIVERSITY, GRADUATE SCHOOL, MATHEMATICS, NEW JERSEY

ALGEBRAIC METHODS IN ANALYSIS

R. C. GUNNING, P. C. GREINER, E. NELSON
S. SCHEINBERG, W. VEECH

NSF-GP-3453
9/65- 9/66

NSF-MATHEMATICAL SCIENCES DIVISION

GSM 495 1 FIELD 12A

PRINCETON UNIVERSITY, GRADUATE SCHOOL, MATHEMATICS, NEW JERSEY

ANALYTIC AND GEOMETRIC METHODS IN NUMBER THEORY

G. SHIMURA, G. WASHNITZER

NSF-GP-3454
9/65- 9/66

NSF-MATHEMATICAL SCIENCES DIVISION

GSM 496 1 FIELD 12A

HARVARD UNIVERSITY, GRADUATE SCHOOL, MATHEMATICS, MASSACHUSETTS

ALGEBRA, ALGEBRAIC NUMBER THEORY AND ALGEBRAIC GEOMETRY

R. BRAUER

NSF-GP-3512
9/65- 9/66

NSF-MATHEMATICAL SCIENCES DIVISION

GSM 498 1 FIELD 12A

UNIVERSITY OF VIRGINIA, GRADUATE SCHOOL, MATHEMATICS, VIRGINIA

TOPOLOGICAL ANALYSIS

G. T. WHYBURN, P. E. CONNER, E. E. FLOYD

NSF-GP-3445
9/65- 9/66

NSF-MATHEMATICAL SCIENCES DIVISION

GSM 517 1 FIELD 12A, 9C

UNIVERSITY OF MICHIGAN, GRADUATE SCHOOL, MATHEMATICS, MICHIGAN

REAL AND COMPLEX ANALYSIS

G. PIRANIAN, D. A. DARLING, D. G. DICKSON
C. L. DOLPH, R. G. DOUGLAS
J. L. GOLDBERG, N. KAZARINOFF

NSF-GP-3466
9/65- 9/66

NSF-MATHEMATICAL SCIENCES DIVISION

GSO 6 1 FIELD 12A, 7D,11G

WESTERN RESERVE UNIV, SCHOOL OF LIBRARY SC, CTR DOCUM + COMMUN RES, OHIO

AUTOMATIC PROCESSING OF METALLURGICAL ABSTRACTS FOR THE PURPOSE OF INFORMATION RETRIEVAL

J. MELTON, G. BAUMANIS, K. T. CHANG
F. W. HARWOOD, C. HESPEN, M. I. SASTRI

GN-303-1
6/65-11/65

NSF-OFFICE SCIENCE INFORMATION SERVICE

GSO 23 FIELD 12A

UNIV OF CAL-L. A., GRADUATE SCHOOL, LIBRARY SERVICE, CALIFORNIA

RESEARCH ON THE MEASUREMENT OF FILE OPERATING EFFECTIVENESS

R. M. HAYES, T. S. MOTZKIN

GN-422
7/65- 6/66

NSF-OFFICE SCIENCE INFORMATION SERVICE

GSP 1753 1 FIELD 12A,20H, 5A,20J

LOYOLA UNIVERSITY, GRADUATE SCHOOL, PHYSICS, LOUISIANA

MATHEMATICAL METHODS IN GENERAL RELATIVITY

C. H. BRANS

NSF-GP-3166
7/65- 7/66

NSF-PHYSICAL SCIENCES DIVISION

GSS 9 1 FIELD 5C

UNIV OF WISCONSIN, GRADUATE SCHOOL, ECONOMICS, WISCONSIN

RECURSIVE PROGRAMMING ANALYSIS OF PRODUCTION

R. H. DAY

NSF-GS-440
7/65- 7/66

NSF-SOCIAL SCIENCES DIVISION

GSS 188 1 FIELD 12A, 5C

PRINCETON UNIVERSITY, GRADUATE SCHOOL, ECONOMICS, NEW JERSEY

MATHEMATICAL METHODS FOR ECONOMIC TIME SERIES ANALYSIS

O. MORGENSTERN

NSF-GS-551
9/65- 9/66

NSF-SOCIAL SCIENCES DIVISION

GSS 190 1 FIELD 12A, 5C

STANFORD UNIVERSITY, MISCELLANEOUS SCHOOLS, ECONOMICS, CALIFORNIA

MATHEMATICAL PROGRAMMING AND MATHEMATICAL ECONOMICS

H. M. WAGNER

NSF-GS-552
7/65- 7/66

NSF-SOCIAL SCIENCES DIVISION

13. Mechanical, Industrial, Civil, and Marine Engineering

GSE 607 1 FIELD 7D,11G,13H

UNIV OF CAL-BERKELEY, SCHOOL OF ENGINEERING, MINERAL TECHNOLOGY, CALIFORNIA

SURFACE PHENOMENA IN FLOTATION

D. W. FUERSTENAU

NSF-GK-53
9/65- 9/66

NSF-ENGINEERING SCIENCES DIVISION

GSE 629 1 FIELD 8H

PRINCETON UNIVERSITY, SCHOOL OF ENGINEERING, CIVIL ENGINEERING, NEW JERSEY

DYNAMIC GROUND-WATER STORAGE

R. J. DEWIEST, R. •. DEWIEST

NSF-GK-33
9/65- 9/66

NSF-ENGINEERING SCIENCES DIVISION

GT 34 FIELD 13G,12A, 5C,13M

MASS INST OF TECHNOL, SCHOOL OF ENGINEERING, CIVIL ENGINEERING, MASSACHUSETTS

ROUTING UNSTEADY FLOWS FROM HYDROELECTRIC PLANTS FOR OPTIMIZATION OF NAVIGATION AND PEAK POWER PRODUCTION

R. T. MCLAUGHLIN
/66- /

TENNESSEE VALLEY AUTHORITY

GUN 2363 FIELD 13B, 8H

STATE, DEPT FISH + WLF, KENTUCKY

MAPPING

J. R. CHARLES

INT-FA-F-22-R-2-2-A
4/65- 3/66

INTERIOR-BUREAU SPORT FISH WLIFE-FED AID

GUN 4 FIELD 13G,13B, 8H, 8G

UNIVERSITY OF IDAHO, SCHOOL OF AGRICULTURE, AGRIC ENGINEERING, IDAHO

EFFECT OF EXTERNAL AIR PRESSURE ON LIQUID FLOW THROUGH POROUS MEDIA

G. L. BLOOMSBURG, G. L. COREY

INT-WR-A-001-IDA
6/65- 5/66

INTERIOR-OFFICE OF WATER RESOURCES

GUN 22 FIELD 13B, 8H

OHIO STATE UNIVERSITY, GRADUATE SCHOOL, GEOLOGY, OHIO

A STUDY OF GROUNDWATER CONTAMINATION DUE TO SALINE WATER DISPOSAL IN THE MORROW COUNTY OIL FIELDS

J. H. LEHR

INT-WR-A-004-OHIO
1/65-12/65

INTERIOR-OFFICE OF WATER RESOURCES

GUN 38 FIELD 13G, 8H

COLORADO STATE UNIV, SCHOOL OF ENGINEERING, CIVIL ENGINEERING, COLORADO

WATER STORAGE MANAGEMENT

V. M. YEVDJEVICH, H. K. HAGEN
J. R. MEIMAN, W. F. ROWLAND

INT-WR-A-003-COLO
6/65- 5/66

INTERIOR-OFFICE OF WATER RESOURCES

GUN 39 FIELD 8H

UNIV OF CAL-L. A., GRADUATE SCHOOL, POLITICAL SCIENCE, CALIFORNIA

POLICY DEVELOPMENTS IN THE PACIFIC SOUTHWEST WATER PLAN IN RELATION TO THE STRATEGY OF WESTERN REGIONAL WATER DEVELOPMENT

E. A. ENGELBERT

INT-OWR-A-008-CAL
/65- /

INTERIOR-OFFICE OF WATER RESOURCES

GUN 43 FIELD 13B, 7D, 8H

OKLAHOMA STATE UNIV, SCHOOL OF ENGINEERING, CHEMICAL ENGINEERING, OKLAHOMA

ENZYMES AND CATALYSTS FOR PURIFICATION OF INDUSTRIAL WASTE WATER

J. W. FULTON

INT-OWR-A-007-OKLA
/66- /

INTERIOR-OFFICE OF WATER RESOURCES

GUN 52 FIELD 13G, 8H, 5C, 8E

UNIV OF CAL-BERKELEY, SCHOOL OF ENGINEERING, CIVIL ENGINEERING, CALIFORNIA

THE MANAGEMENT OF SURFACE WATER HYDROLOGIC SYSTEMS FOR WATER QUALITY CONTROL

G. T. ORLOB, G. •. ORLOB

INT-OWR-A-004-CAL
/66- /

INTERIOR-OFFICE OF WATER RESOURCES

GUN 53 FIELD 8H, 5C, 8E

UNIV OF CAL-L. A., SCHOOL OF ENGINEERING, ENGINEERING, CALIFORNIA

THE APPLICATION OF OPTIMIZATION TECHNIQUES TO PROBLEMS IN WATER RESOURCES DEVELOPMENT

W. A. HALL, N. BURAS

INT-OWR-A-010-CAL
/65- /

INTERIOR-OFFICE OF WATER RESOURCES

GUN 54 FIELD 7D, 8D, 8H, 7B

UNIV OF CAL-L. A., SCHOOL OF ENGINEERING, ENGINEERING, CALIFORNIA

VACUUM CUP EMISSION SPECTROGRAPHY A ROUTINE METHOD FOR QUANTITATIVE WATER QUALITY DETERMINATIONS

A. F. BUSH, A. •. BUSH

INT-OWR-A-001-CAL
/65- /

INTERIOR-OFFICE OF WATER RESOURCES

GUN 65 FIELD 13B, 7D, 7B

VIRGINIA POLYTECH INST, SCHOOL OF ENGINEERING, CIVIL ENGINEERING, VIRGINIA

CONCENTRATION OF PHOSPHATE SLUDGES

W. A. PARSONS

INT-WR-A-001-VA
/66- /

INTERIOR-OFFICE OF WATER RESOURCES

GUN 69 FIELD 13G,13B,12A

UNIV OF KENTUCKY, SCHOOL OF ENGINEERING, CIVIL ENGINEERING, KENTUCKY

ECONOMIC ANALYSIS OF ALTERNATIVE FLOOD-CONTROL MEASURES

L. D. JAMES

INT-WR-A-001-KY
/66- /

INTERIOR-OFFICE OF WATER RESOURCES

GUN 72 FIELD 13B, 8H

SOUTH DAKOTA ST UNIV, SCHOOL OF ENGINEERING, CIVIL ENGINEERING, SOUTH DAKOTA

INVESTIGATION OF THE INFLUENCE OF WASTE DISPOSAL PRACTICES ON GROUND WATER QUALITIES

J. R. ANDERSEN, J. N. DORNBUSH

INT-WR-A-003-SDAK
/66- /

INTERIOR-OFFICE OF WATER RESOURCES

GUN 93 FIELD 13B

AUBURN UNIVERSITY, SCHOOL OF AGRICULTURE, AGRONOMY + SOILS, ALABAMA

EVALUATION OF EARTHY MATERIALS FOR USE IN DECONTAMINATION OF WATER

J. B. DIXON

INT-WR-A-001-ALA
/66- /

INTERIOR-OFFICE OF WATER RESOURCES

18. Nuclear Science and Technology

GPE 296 2 FIELD 7D,20J, 5A,18A

USDC, NATL BUR STAN, DIST OF COLUMBIA

MEASUREMENTS OF LOW-LEVEL RADIOACTIVITY

L. A. CURRIE, G. M. FRANCE, J. E. HARDING
W. B. MANN, P. A. MULLEN, H. L. STEINBERG

AT-49-2-1165
7/64- 6/65

AEC-BIOLOGY + MEDICINE

GPE 297 2 FIELD 7D,14E,20M,20J

USDC, NATL BUR STAN, DIST OF COLUMBIA

EVALUATION AND TESTING OF RADIATION INSTRUMENTS

M. EHRLICH, W. L. MCLAUGHLIN, K. SCHARF
S. W. SMITH, J. M. SPARROW, I. T. WEAVER

AT-49-2-1165
7/64- 6/65

AEC-BIOLOGY + MEDICINE

GPE 298 2 FIELD 5A,18A, 7B

USDC, NATL BUR STAN, DIST OF COLUMBIA

INSTRUMENTATION FOR NUCLEAR APPLICATIONS

L. COSTRELL, A. B. MARELLA

AT-49-2-1165
7/64- 6/65

AEC-BIOLOGY + MEDICINE

GPE 299 2 FIELD 5A,18A,20H, 7D

USDC, NATL BUR STAN, DIST OF COLUMBIA

FAST NEUTRON SPECTROSCOPY

R. S. CASWELL, W. B. BEVERLY, T. G. HOBBS V. SPIEGEL

AT-49-2-1165
7/64- 6/65

AEC-BIOLOGY + MEDICINE

GPE 394 2 FIELD 7D, 8D, 8H, 7B

INTERNATL ATOMIC ENG, AUSTRIA

THE MEASUREMENT OF HYDROGEN AND OXYGEN ISOTOPES IN NATURAL WATERS AND ITS APPLICATION TO METEOROLOGY AND HYDROLOGY

B. R. PAYNE, J. F. CAMERON, T. FLORKOWSKI L. L. THATCHER

AT(30-1)3162
1/65-12/65

AEC-BIOLOGY + MEDICINE

GPE 547 6 FIELD 7D, 4A, 7B

UNIVERSITY OF ARKANSAS, GRADUATE SCHOOL, CHEMISTRY, ARKANSAS

RADIOACTIVE FALLOUT

P. K. KURODA, M. P. MENON, M. N. RAO

AT-40-1-2529
4/65- 3/66

AEC-BIOLOGY + MEDICINE

GPE 593 1 1 FIELD 8D, 8H, 4A, 4B

UNIV OF WASHINGTON, GRADUATE SCHOOL, CHEMISTRY, WASHINGTON

HYDROSPHERE-ATMOSPHERE RADIOCHEMICAL MEASUREMENTS

A. W. FAIRHALL, P. H. GUDIKSEN W. R. SCHELL, J. A. YOUNG

AT-45-1-1776
5/64- 4/65

AEC-BIOLOGY + MEDICINE

GPE 665 4 FIELD 7C, 7D, 7A,20J

UNIVERSITY OF GEORGIA, GRADUATE SCHOOL, CHEMISTRY, GEORGIA

AN INVESTIGATION OF CHEMILUMINESCENT COMPOUNDS AS RADICAL DETECTORS

G. E. PHILBROOK, E. G. JANZEN

AT-40-1-2851
5/65- 4/66

AEC-BIOLOGY + MEDICINE

GPE 865 FIELD 12A,20H,18A, 7D

USN, BUR SHIPS, SAN FRANCISCO, CALIFORNIA

THE FORMATION, DISTRIBUTION AND CHARACTERISTICS OF RADIOACTIVE FALLOUT - SUBPROJECT 3 - FRACTIONATION CORRELATIONS

E. C. FREILING, M. A. KAY

AT-49-7-1963
7/64- 6/65

AEC-BIOLOGY + MEDICINE

GPE 866 FIELD 7D,19D,20M, 8K

USN, BUR SHIPS, SAN FRANCISCO, CALIFORNIA

THE FORMATION, DISTRIBUTION AND CHARACTERISTICS OF RADIOACTIVE FALLOUT - SUBPROJECT 4 - LABORATORY STUDIES

C. E. ADAMS, J. T. QUAN

AT-49-7-1963
7/64- 6/65

AEC-BIOLOGY + MEDICINE

GPE 867 FIELD 8D, 4A,12A,18A

USN, BUR SHIPS, SAN FRANCISCO, CALIFORNIA

THE FORMATION, DISTRIBUTION AND CHARACTERISTICS OF RADIOACTIVE FALLOUT - SUBPROJECT 2 - PREDICTION OF FRACTIONATION EFFECTS

E. C. FREILING, G. R. CROCKER, M. A. KAY

AT-49-7-1963
7/64- 6/65

AEC-BIOLOGY + MEDICINE

GPF 267 3 FIELD 20M,20J, 5A,20L

PURDUE UNIVERSITY, GRADUATE SCHOOL, PHYSICS, INDIANA

BASIC RADIATION DAMAGE STUDIES

J. W. MACKAY, T. A. CALLCOTT E. E. KLONTZ, R. L. MIEHER J. E. WHITEHOUSE, H. J. YEARIAN

AT-11-1-125
4/65- 3/66

AEC-DIVISION OF PHYSICAL RES

GPF 281 3 FIELD 7C, 7D, 7A,20J

CARNEGIE INST TECHNOL, SCHOOL OF ENGINEERING, PHYSICS, PENNSYLVANIA

RADIATION EFFECTS IN SOLIDS

D. A. WIEGAND, G. CROWE, W. FUCHS T. MUMAW, J. NAHUM, J. SCHAEFER

AT-30-1-3033
4/65- 3/66

AEC-DIVISION OF PHYSICAL RES

GPF 499 2 FIELD 20M,11F,11G,18A

CLEMSON UNIVERSITY, GRADUATE SCHOOL, PHYSICS, SOUTH CAROLINA

RADIATION EFFECTS IN CRYSTALLINE MATERIALS

R. L. CHAPLIN

AT-40-1-3098
9/65- 8/66

AEC-DIVISION OF PHYSICAL RES

GSP 106 4 FIELD 4A, 5A,18A,20H

UNIVERSITY OF MICHIGAN, GRADUATE SCHOOL, PHYSICS, MICHIGAN

COSMIC-RAY EXPERIMENTS

W. E. HAZEN, P. BARKER, A. Z. HENDEL

NSF-GP-3363
8/65- 8/66

NSF-PHYSICAL SCIENCES DIVISION

GUW 87 FIELD 18G,13B

MISSISSIPPI STATE UNIV, SCHOOL OF ENGINEERING, CIVIL ENGINEERING, MISSISSIPPI

DECONTAMINATION OF LOW-LEVEL RADIOACTIVE WASTES WITH YAZOO AND ZILPHA CLAYS

E. J. MIDDLEBROOKS

INT-WR-A-004-MISS
/66- /

INTERIOR-OFFICE OF WATER RESOURCES

GAS 685 2 FIELD 11B,20C,20H,20L

WEIZMANN INST SCI, , , ISRAEL

MAGNETIC PROPERTIES USING THE MOSSBAUER EFFECT

P. MILLMAN

AF-61-052-621
5/65- 4/66

AIR FORCE-SYSTEMS COMMAND

GAS 687 2 FIELD 7D,11F,13H,11G

TECH. HOCHSCHULE, , , AUSTRIA

MAGNETIC MANGANESE-RARE EARTH ALLOYS

F. LIHL

AF-61-052-609
4/64- 3/65

AIR FORCE-SYSTEMS COMMAND

GBA 10 FIELD 7D

HEBREW UNIVERSITY IS, , , ISRAEL

STUDIES IN RADIOACTIVITY AND NUCLEAR SPECTROSCOPY

S. G. COHEN

NBS-8700351-1
/65- /

COMMERCE-NATIONAL BUREAU OF STANDARDS

GH 13 2 FIELD 20C,20I

STANFORD UNIVERSITY, SCHOOL OF ENGINEERING, ELECTRICAL ENGINEERING, CALIFORNIA

THEORETICAL RESEARCH ON ELECTRON ENERGY IN PLASMA THERMIONIC DIODES

O. BUNEMAN, P. BURGER, H. DERFLER

NASA-NSG-299-P-1
10/64- 9/65

NASA

GH 241 3 FIELD 20J, 5A,20I

NEW YORK UNIVERSITY, GRADUATE SCHOOL, PHYSICS, NEW YORK

CONDUCT RESEARCH ON THE ENERGY LOSS OF CHARGED PARTICLES IN PLASMAS AND THE EXCIATION SPECTRA OF PLASMAS WITH DENSITY GRADIENTS

W. BRANDT

NASA-NSG-169-P-1
7/64-12/64

NASA

GH 264 3 FIELD 20J,20I

USN, OFF NAV RES, NAV RES LAB, , DIST OF COLUMBIA

CONDUCT RESEARCH ON ULTRAVIOLET SPECTROSCOPY USING HIGH TEMPERATURE PLASMA SOURCES

A. C. KOLB

NASA-SI-2-R-9
12/63- 6/64

NASA

GH 381 3 FIELD 20M,20D

UNIV OF CONNECTICUT, SCHOOL OF ENGINEERING, MECHANICAL ENGINEERING, CONNECTICUT

798-319 O - 66 - C

ANALYTICAL AND EXPERIMENTAL HEAT TRANSFER STUDIES OF MOVING VAPOR CONDENSING IN SMALL TUBES

W. E. HILDING

NASA-NSG-204-E-3
10/64-10/65

NASA

GH 437 2 FIELD 5A,20F,20+

USDC, NATL BUR STAN, , , DIST OF COLUMBIA

INVESTIGATE THE PHYSICAL PROPERTIES OF LIGHT SOURCES AND DETECTORS IN THE FAR ULTRA-VIOLET AND SOFT X-RAY REGIONS OF THE SPECTRUM

R. P. MADDEN

NASA-R-73-SI-2
7/64- 6/65

NASA

GH 495 1 FIELD 5A,20L

UNIVERSITY OF CHICAGO, GRADUATE SCHOOL, PHYSICS, ILLINOIS

THEORETICAL AND EXPERIMENTAL INVESTIGATIONS OF SUPER-CONDUCTIVITY
M. H. COHEN

NASA-NSG-352-P-1
3/64- 2/65

NASA

GH 732 1 FIELD 9+, 9A,20C,20I

UNIVERSITY OF ILLINOIS, SCHOOL OF ENGINEERING, ELECTRICAL ENGINEERING, ILLINOIS

A STUDY OF SELECTED RADIATION AND PROPAGATION AND SPACE ADMINISTRATION

G. A. DESCHAMPS

NASA-NSG-395-E-3
7/64- 8/65

NASA

GH 795 2 FIELD 20I

UNIVERSITY OF MICHIGAN, SCHOOL OF ENGINEERING, ELECTRICAL ENGINEERING, MICHIGAN

LANGMUIR-PROBE TECHNIQUES

A. F. NAGY, T. B. LEE

NASA-NASR-54-04-SI-1
12/64- 3/65

NASA

GH 1421 FIELD 20M,20D

UNIV OF NORTH DAKOTA, SCHOOL OF ENGINEERING, MECHANICAL ENGINEERING, NORTH DAKOTA

TIME-TEMPERATURE CHARACTERISTICS OF THIN-SKINNED MODELS AS AFFECTED BY THERMOCOUPLE VARIABLES

M. B. LARSON, E. NELSON
NASA-NGR-35-002-003
10/64-10/65

NASA

GH 1455 FIELD 13H,11G

UNIV OF TORONTO, , , CANADA

FAILURE MECHANISMS AND STATISTICAL ASPECTS OF METAL FATIGUE

G. K. KORBACHER

NASA-NGR-52-026-008
11/64-10/65

NASA

GNE 51 2 FIELD 20I

FORD INSTR. CO., DET, , , MICHIGAN

PLASMA STUDY

L. HARING

NR-099-356
10/64- 9/65

NAVY-OFFICE OF NAVAL RESEARCH

GNE 73 1 FIELD 5A,20F

UNIVERSITY OF DELAWARE, GRADUATE SCHOOL, PHYSICS, DELAWARE

ELECTRO-OPTICAL STUDIES

K. W. BOER

NR-015-912
10/64- 9/65

NAVY-OFFICE OF NAVAL RESEARCH

GNE 402 4 FIELD 20M,11B,11F,20C

UNIV OF PENNSYLVANIA, GRADUATE SCHOOL, PHYSICS, PENNSYLVANIA

MAGNETIC STUDIES OF SOLIDS

K. R. ATKINS, M. CASPARI

NR-018-902
12/64-11/65

NAVY-OFFICE OF NAVAL RESEARCH

GNE 525 2 FIELD 11F,13H,11G, 5A

MARTIN CO BALTIMORE, , , MARYLAND

DEFECT SOLID STATE

H. PEIFFER

NR-031-692
1/65-12/65

NAVY-OFFICE OF NAVAL RESEARCH

GNE 619 3 FIELD 20C,20I, 7B

UNIFIED SCIENCE ASSOC, PASADENA, , CALIFORNIA

STABLE DENSE COLD PLASMA

S. NAIDITCH, R. BRADSPIES, C. JORDAN
O. PAEZ, J. J. ROWLETTE, R. A. WILLIAMS
J. WREEDE

NR 099-377
3/64- 2/65

NAVY-OFFICE OF NAVAL RESEARCH

GNE 1262 2 FIELD 20L

UNIV OF CAL-BERKELEY, SCHOOL OF ENGINEERING, INST ENGINEERING RES, CALIFORNIA

SURFACE ELECTRON ENERGY

A. M. RUSSELL

NR-017-441
4/65- 3/66

NAVY-OFFICE OF NAVAL RESEARCH

GNE 1271 2 FIELD 11B,20J,20F, 7B

AMER OPTICAL CO, , , MASSACHUSETTS

LASER MATERIALS R + D

R. W. YOUNG

NR-017-701
3/65- 2/66

NAVY-OFFICE OF NAVAL RESEARCH

GNE 1435 4 FIELD 11G, 5A

UNIVERSITY OF ILLINOIS, GRADUATE SCHOOL, PHYSICS, ILLINOIS

PLASTIC DEFORMATION

J. S. KOEHLER

NR-017-307
9/64- 8/65

NAVY-OFFICE OF NAVAL RESEARCH

GNE 2280 2 FIELD 20A

UNIV OF CAL-BERKELEY, GRADUATE SCHOOL, MATHEMATICS, CALIFORNIA

WAVE PROPAGATION IN VARIOUS MEDIA

E. PINNEY

NR-089-001
8/64- 7/65

NAVY-OFFICE OF NAVAL RESEARCH

GNE 2306 FIELD 20J, 5A, 7D

CARNEGIE INST TECHNOL, SCHOOL OF ENGINEERING, PHYSICS, PENNSYLVANIA

ATOMIC AND NUCLEAR THEORY

M. BARANGER

NR-024-439
7/64- 6/65

NAVY-OFFICE OF NAVAL RESEARCH

GNE 2307 FIELD 5A

UNIVERSITY OF CHICAGO, GRADUATE SCHOOL, PHYSICS, ILLINOIS

LARGE SCALE FLUCTUATIONS

S. CHANDRASEKHAR

NR-013-213
7/64- 6/65

NAVY-OFFICE OF NAVAL RESEARCH

GNE 2310 FIELD 20J

GENERAL ELECTRIC CO, SANTA BARBARA, , CALIFORNIA

FACED PUMP LASER

. NONE

NR-015-706
7/64- 6/65

NAVY-OFFICE OF NAVAL RESEARCH

GNE 2313 FIELD 20J, 5A,20F

NEW MEX STATE UNIV, GRADUATE SCHOOL, PHYSICS, NEW MEXICO

LIGHT SCATTERING

D. H. THEIMER

NR-015-910
7/64- 6/65

NAVY-OFFICE OF NAVAL RESEARCH

GNE 2341 FIELD 5A

COLUMBIA UNIVERSITY, GRADUATE SCHOOL, PHYSICS, NEW YORK

ARTEMIS SUPPORT

A. BERMAN

NR-187-001
8/64- 7/65

NAVY-OFFICE OF NAVAL RESEARCH

GNE 2343 FIELD 8C,20A

COLUMBIA UNIVERSITY, GRADUATE SCHOOL, GEOLOGY, NEW YORK

OCEAN SOUND TRANSMISSION

M. EWING

NR-186-202
8/64- 7/65

NAVY-OFFICE OF NAVAL RESEARCH

GNE 2345 FIELD 20D

HUGHES AIRCRAFT CO, CULVER CITY, , CALIFORNIA

HIGH SPEED TOWED RESEARCH

J. SHIELDS

NR-187-706
8/64- 7/65

NAVY-OFFICE OF NAVAL RESEARCH

GNE 2358 FIELD 12A,20L

MASS INST OF TECHNOL, GRADUATE SCHOOL, MATHEMATICS, MASSACHUSETTS

PROBLEMS IN ELASTICITY

E. REISSNER

NR-064-418
8/64- 7/65

NAVY-OFFICE OF NAVAL RESEARCH

GNE 2397 3 FIELD 11G

S. W. RES. INST., SA, , , TEXAS

NEW EXPERIMENTAL TECHNIQUES FOR DETERMINING STRAIN IN FILLED VISCOELASTIC MATERIALS

R. C. DEHART

NR-064-451
1/65-12/65

NAVY-OFFICE OF NAVAL RESEARCH

GNE 2415 FIELD 20C, 5A,20L

UNIVERSITY OF COLORADO, GRADUATE SCHOOL, PHYSICS + ASTROPHYSICS, COLORADO

GALVANOMAGNETIC PHENOMENA

S. C. MILLER, W. F. LOVE

NR-017-462
10/64- 9/65

NAVY-OFFICE OF NAVAL RESEARCH

GNE 2416 FIELD 20J

GENERAL PRECISION LABS, PLEASANTVILLE, NEW YORK

LASER-TRANSFORMERS

C. B. ELLIS

NR-015-709
10/64- 9/65

NAVY-OFFICE OF NAVAL RESEARCH

GNE 2418 FIELD 20J

KORAD CORP, SANTA MONICA, , CALIFORNIA

LASER PROCUREMENT

A. M. JOHANSON

NR-015-324
10/64- 9/65

NAVY-OFFICE OF NAVAL RESEARCH

GNE 2420 FIELD 5A,20L

PENNSYLVANIA ST UNIV, GRADUATE SCHOOL, PHYSICS, PENNSYLVANIA

SEMICONDUCTOR SURFACES

D. R. FRANKL

NR-017-463
10/64- 9/65

NAVY-OFFICE OF NAVAL RESEARCH

GNE 2457 FIELD 20D,20K, 5A,20A

COLUMBIA UNIVERSITY, GRADUATE SCHOOL, PHYSICS, NEW YORK

SOUND FROM SPHEROID SHELLS

W. F. GOODELL

NR-185-302
11/64-10/65

NAVY-OFFICE OF NAVAL RESEARCH

GNE 2462 FIELD 5A,20I

UNIV OF CAL-L. A., GRADUATE SCHOOL, PHYSICS, CALIFORNIA

THEORY OF UNSTABLE PLASMAS

B. D. FRIED

NR-012-306
11/64-10/65

NAVY-OFFICE OF NAVAL RESEARCH

GNE 2464 FIELD 3A, 4A, 5A

CASE INST OF TECHNOL, GRADUATE SCHOOL, PHYSICS, OHIO

COSMIC RAY CONFERENCE

F. REINES

NR-022-528
11/64- 4/65

NAVY-OFFICE OF NAVAL RESEARCH

GPE 300 2 FIELD 20D, 5A,18A,20H

USDC, NATL BUR STAN, DIST OF COLUMBIA

ELECTRON SCATTERING IN CONDENSED MATTER

C. J. POWELL, N. SWANSON

AT-49-2-1165
7/64- 6/65

AEC-BIOLOGY + MEDICINE

GPF 30 3 FIELD 20H, 7D

YALE UNIVERSITY, GRADUATE SCHOOL, PHYSICS, CONNECTICUT

THEORY OF NUCLEAR REACTIONS

G. BREIT, R. G. BRANDT, M. H. HULL
F. C. LIN, J. F. MASSO, H. NAKAMURA
J. A. POLAK

AT-30-1-1807
6/65- 5/66

AEC-DIVISION OF PHYSICAL RES

GPF 37 1 FIELD 5A,18A,20H

CAL INST OF TECHNOLOGY, GRADUATE SCHOOL, PHYSICS, CALIFORNIA

HIGH ENERGY PHYSICS PROGRAM

R. F. BACHER, E. ABERS, L. A. BALAZS
B. C. BARISH, R. F. DEERY
S. C. FRAUTSCHI, M. GELLMANN
AT-11-1-68
/65- /

AEC-DIVISION OF PHYSICAL RES

GPF 44 2 FIELD 5A,18A,20H, 7D

BRANDEIS UNIVERSITY, GRADUATE SCHOOL, PHYSICS, MASSACHUSETTS

RESEARCH IN ELEMENTARY PARTICLE PHYSICS

S. E. WOLF, M. CHRETIEN, J. MUELLER
M. SCHNEEBERGER

AT-30-1-3178
1/65- 8/65

AEC-DIVISION OF PHYSICAL RES

GPF 101 2 FIELD 7C, 7D,11B,20L

FRANKLIN INSTITUTE, PENNSYLVANIA

SOLID STATE INVESTIGATIONS UTILIZING ELECTRON-BOMBARDMENT PHENOMENA

M. A. POMERANTZ, W. E. DANFORTH
P. ESTROP, J. H. POLLARD

AT-30-1-2730
1/65- 1/66

AEC-DIVISION OF PHYSICAL RES

GPF 103 2 FIELD 5A,20H

OHIO STATE UNIVERSITY, GRADUATE SCHOOL, PHYSICS, OHIO

K-MESON EXPERIMENTS AT ZGS

T. A. ROMANOWSKI, K. REIBEL, K. TANAKA
W. W. WADA

AT-11-1-1261
2/65- 9/65

AEC-DIVISION OF PHYSICAL RES

GPF 109 3 FIELD 7D,11B,11F,11G

STANFORD UNIVERSITY, SCHOOL OF ENGINEERING, MATERIALS SCIENCE, CALIFORNIA

KINETICS IN SOLID STATE SYSTEMS

R. A. HUGGINS, W. G. MACRES

AT-04-3-298
8/65- 7/66

AEC-DIVISION OF PHYSICAL RES

GPF 151 3 FIELD 5A,20H

UNIV OF WISCONSIN, GRADUATE SCHOOL, PHYSICS, WISCONSIN

A STUDY OF FUNDAMENTAL PARTICLES

M. L. GOOD, A. ERWIN, R. W. HARTUNG
. KLOEPPEL, L. G. PONDROM, A. STRELZOFF
W. O. WALKER

AT-11-1-881
10/64- 9/65

AEC-DIVISION OF PHYSICAL RES

GPF 176 2 FIELD 7C,20M,11G,20L

BATTELLE MEMORIAL IN, OHIO

INVESTIGATION OF STEADY-STATE CREEP IN NONSTOICHIOMETRIC COMPOUNDS

M. S. SELTZER

W-7405-ENG-92
6/65- 5/66

AEC-DIVISION OF PHYSICAL RES

GPF 193 3 FIELD 20J, 5A,18A,20H

UNIVERSITY OF CHICAGO, GRADUATE SCHOOL, FOOD RES INSTITUTE, ILLINOIS

LOW ENERGY NUCLEAR PHYSICS AND THE PHYSICS OF ION BEAMS

S. K. ALLISON, S. *. ALLISON, J. CUEVAS

J. L. HONSAKER, P. TORRES

AT-11-1-238
4/65- 3/66

AEC-DIVISION OF PHYSICAL RES

GPF 197 3 FIELD 11F,11G,20C,20L

UNIV OF MINNESOTA, GRADUATE SCHOOL, METALLURGICAL ENGIN, MINNESOTA

A STUDY OF THE ANOMALOUS PLASTIC DEFORMATION IN AG-PD AND AU-PD ALLOYS

M. E. NICHOLSON

AT-11-1-1009
3/65-12/65

AEC-DIVISION OF PHYSICAL RES

GPF 202 3 FIELD 7C, 7A, 7D,20M

NORTHWESTERN UNIV, SCHOOL OF ENGINEERING, MATERIALS SCIENCE, ILLINOIS

STUDIES OF RADIATION DAMAGE RESULTING FROM ELECTRON BOMBARDMENT

J. W. KAUFFMAN

AT-11-1-1161
4/65- 3/66

AEC-DIVISION OF PHYSICAL RES

GPF 231 3 FIELD 20M,20J,20C, 5A

IIT RESEARCH INSTITUTE, AT ILL INST OF TECHNOL, ILLINOIS

MAGNETIC PROPERTIES OF INSULATORS

G. A. NOBLE, G. E. STUNGIS

AT-11-1-578-9
2/65- 2/66

AEC-DIVISION OF PHYSICAL RES

GPF 245 2 FIELD 20D, 5A,18A,20H

WESTERN RESERVE UNIV, GRADUATE SCHOOL, PHYSICS, OHIO

POSITRON ANNIHILATION IN LIQUIDS AND SOLIDS

J. D. MCGERVEY, P. BOND, J. C. ERSKINE
A. GEIGER, R. H. HIEBER, V. F. WALTERS

AT-11-1-1297
6/65- 6/66

AEC-DIVISION OF PHYSICAL RES

GPF 250 3 FIELD 20C, 5A,20L, 7B

UNIVERSITY OF NEBRASKA, GRADUATE SCHOOL, PHYSICS, NEBRASKA

STUDIES OF IMPERFECTIONS IN SOLIDS

P. A. PEARLSTEIN, J. W. WEYMOUTH

AT-11-1-525
6/65- 5/66

AEC-DIVISION OF PHYSICAL RES

GPF 259 3 FIELD 20M,11F,13H,11G

UNIV OF NORTH CAROLINA, GRADUATE SCHOOL, PHYSICS, NORTH CAROLINA

RADIATION DAMAGE STUDIES + COULOMB EXCITATION AND DEUTERON STRIPPING REACTIONS

P. E. SHEARIN, D. E. ELLIOTT
P. B. PETERS, E. R. POORE, W. P. RICKEY
C. G. ROBERTS, C. L. SNEAD

AT-40-1-2577
6/65- 5/66

AEC-DIVISION OF PHYSICAL RES

GPF 286 3 FIELD 7C, 7D, 7A,20M

CLARKSON COL OF TECH, GRADUATE SCHOOL, CHEMISTRY, NEW YORK

SIZE AND SHAPE OF COLLOIDAL PARTICLES BY LIGHT SCATTERING AND ELECTRON MICROSCOPY

M. KERKER, J. KRATOHVIL

AT-30-1-1801
6/65- 5/66

AEC-DIVISION OF PHYSICAL RES

GPF 312 10 FIELD 20M, 5A,20I

MASS INST OF TECHNOL, GRADUATE SCHOOL, PHYSICS, MASSACHUSETTS

PLASMA PHYSICS

S. C. BROWN, W. P. ALLIS, G. BEKEFI
F. X. CRIST, J. C. INGRAHAM
J. J. MCCARTHY, W. J. MULLIGAN

AT-30-1-1842
4/65- 3/66

AEC-DIVISION OF PHYSICAL RES

GPF 321 3 FIELD 7C, 7D, 7A,20M

INDIANA UNIVERSITY, GRADUATE SCHOOL, CHEMISTRY, INDIANA

THERMODYNAMIC PROPERTIES OF SOLUTIONS

F. T. GUCKER, D. J. HILL, Z. M. KURTYKA

AT-11-1-504
2/65- 1/66

AEC-DIVISION OF PHYSICAL RES

GPF 367 3 FIELD 7C, 7A, 7D,20M

COLUMBIA UNIVERSITY, SCHOOL OF ENGINEERING, CHEMICAL ENGINEERING, NEW YORK

HIGH TEMPERATURE TRANSPORT PROPERTIES OF PROCESSES OF GASES AND ALKALI METALS

C. F. BONILLA

AT-30-1-2660
6/65- 5/66

AEC-DIVISION OF PHYSICAL RES

GPF 373 4 FIELD 7D,11F,11G,20C

GEORGIA INST OF TECH, SCHOOL OF ENGINEERING, PHYSICS, GEORGIA

SURFACE PROPERTIES OF MAGNETIC MATERIALS

E. J. SCHEIBNER, B. R. LIVESAY

AT-40-1-2755
6/65- 5/66

AEC-DIVISION OF PHYSICAL RES

GPF 380 2 FIELD 5A,20H

MICHIGAN STATE UNIV, GRADUATE SCHOOL, PHYSICS + ASTRONOMY, MICHIGAN

SCATTERING PROBLEMS, INCLUDING THE SCATTERING OF PARTICLES BY ATOMIC NUCLEI

H. MCMANUS, R. M. HAYBRON, K. KUMAR

AT-11-1-1051
6/64- 5/65

AEC-DIVISION OF PHYSICAL RES

GPF 380 3 FIELD 5A,20H

MICHIGAN STATE UNIV, GRADUATE SCHOOL, PHYSICS + ASTRONOMY, MICHIGAN

THEORETICAL INVESTIGATIONS OF SCATTERING PROBLEMS AND NUCLEON - NUCLEON INTERACTION

P. SIGNELL, T. ERIKSON, K. KUMAR
D. G. MARKER, H. MCMANUS, N. R. YODER

AT-11-1-1051
6/65- 5/66

AEC-DIVISION OF PHYSICAL RES

GPF 394 6 FIELD 20J, 5A,20I, 7B

NEW YORK UNIVERSITY, GRADUATE SCHOOL, PHYSICS, NEW YORK

THE USE OF ATOMIC BEAMS AS A PROBE FOR STUDYING LOW DENSITY PLASMA
B. BEDERSON, H. BROWN, E. GRAY

AT-30-1-2397
6/65- 8/65

AEC-DIVISION OF PHYSICAL RES

GPF 429 7 FIELD 20M,11C,11G,11F

WESTINGHOUSE RES LAB, PENNSYLVANIA

SURFACE PHYSICS AND ULTRAHIGH VACUUM TECHNIQUES

J. M. SINGLETON
AT-30-1-2823
4/65- 3/65

AEC-DIVISION OF PHYSICAL RES

GPF 430 2 FIELD 7D,18A

UNIV OF CAL-DAVIS, GRADUATE SCHOOL, CHEMISTRY, CALIFORNIA

NUCLEAR REACTIONS AT HIGH ENERGIES

J. E. WARREN, K. DIERENFELDT
L. D. MILLER, J. ZAYA

AT-11-1-34
3/65- 2/66

AEC-DIVISION OF PHYSICAL RES

GPF 454 3 FIELD 7D,18A, 7B

CARNEGIE INST TECHNOL, GRADUATE SCHOOL, CHEMISTRY, PENNSYLVANIA

HIGH ENERGY NUCLEAR REACTIONS
A. A. CARETTO, R. G. KORTELING
J. A. PANONTIN

AT-30-1-2897
9/65- 8/66

AEC-DIVISION OF PHYSICAL RES

GPF 467 2 FIELD 7C, 7D,20J,20C

WASHINGTON STATE UNIV, GRADUATE SCHOOL, CHEMISTRY, WASHINGTON

NEUTRON DIFFRACTION INVESTIGATION OF PROTON POSITIONS

S. W. PETERSON, F. COLE, B. MATKOVIC
J. WILLIAMS
AT-45-1-1778
6/65- 5/66

AEC-DIVISION OF PHYSICAL RES

21. Propulsion and Fuels

GSB 3971 2 FIELD 21D, 7D, 8G

UNIVERSITY OF KANSAS, GRADUATE SCHOOL, BOTANY, KANSAS

MASS-CUTTING INVESTIGATION OF AMERICAN COAL BALLS

R. W. BAXTER

NSF-GB-1353
7/65- 7/66

NSF-BIOLOGICAL + MEDICAL SCIENCES DIVISI

TECHNICAL ABSTRACT BULLETIN

1/1. AERODYNAMICS

AD-624 759 Fld. 1/1
CFSTI Prices: HC $1.00 MF $0.50
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
DETERMINATION OF VERTICAL WIND GUSTS ON THE BASIS OF OSCILLATIONS OF AIRCRAFT IN FLIGHT WITH THE PILOT'S ACTION ON CONTROL LEVERS TAKEN INTO ACCOUNT,
by A. S. Dubov. 18 Nov 65, 29p. Rept. no. ftd-MT-64-437
TT 65-64790
Unclassified report

Edited machine trans. of Glavnaya Geofizicheskaya Observatoriya, Leningrad. Trudy (USSR) n121 (183) p109-24 1961.

Descriptors: (*Aircraft, Buffeting), (*Aerodynamics, Buffeting), (*Buffeting, Aircraft), Atmospheric motion, Flight paths, Aeronautics, USSR

1/2. AERONAUTICS

AD-624 464 Fld. 1/2, 6/3
CFSTI Prices: HC $2.00 MF $0.50
BUREAU OF SPORT FISHERIES AND WILDLIFE WASHINGTON D C
BIOLOGICAL STUDIES OF THE PROBLEM OF BIRD HAZARD TO AIRCRAFT.
Final rept. 1 Jul 63-30 Jun 64,
by John L. Seubert. Jun 65, 34p. Contract FAA/BRD-A-90 SRDS RD-65-73
Unclassified report

See also AD-604 442.

Descriptors: (*Aviation accidents, Birds), (*Birds, Aviation accidents), Aviation safety, Aircraft, Airports, Hazards, Commercial planes, Damage, Biology

Research was continued on the bird-airport problem. Commercial carriers reported 337 bird-plane strikes in 1963 with gulls and waterfowl again the most important hazard species. In a 1-year study at Washington National Airport and nearby Roaches Run Waterfowl Sanctuary, 20 bird species were rated potentially hazardous because they were numerous and present for extended periods. Productivity was reduced significantly when herring gull eggs were treated with an oil-formaldehyde mixture. Surveys showed the presence of eider ducks, cormorants, laughing gulls, and herons on gull breeding islands, and that herring gulls continued to concentrate at metropolitan food sources. Four gull species were repelled from two airports with broadcast gull distress calls. Caged herring gulls reacted little if at all when exposed to laser beams of 1 to 200 joules. The 'head and shoulders' waves on which the original reported similarity between Electra engines and insect sounds was based also were found in Memoscope tracings of sounds of other aircraft and other animals. Chemical solutions were evaluated as taste stimuli for herring gulls, starlings, and red-winged blackbirds. Individual variation in taste was substantial. An international meeting in 1963 on the bird-aerodrome problem acknowledged that bird problems exist, and recommended that remedial measures be taken, that airplane design requirements be standardized, and that national committees be formed. (Author)

AD-624 616 Fld. 1/2, 17/7, 5/9
CFSTI Prices: HC $3.00 MF $0.75
HUMAN FACTORS RESEARCH INC LOS ANGELES CALIF
GEOGRAPHIC ORIENTATION IN AIRCRAFT PILOTS: METHODOLOGICAL ADVANCEMENT.
Technical rept.,
by James J. McGrath, William E. Osterhoff, Merlyn L. Seltzer, and Gail J. Borden. Oct 65, 55p.
Rept. no. tr-751-5
Contract Nonr-4218 (00)
Unclassified report

Descriptors: (*Flight simulators, Low altitude), (*Low altitude, Navigation), (*Navigation, Flight simulators), Performance (Human), Pilots, Visual perception, Space perception, Mapping, Geography, Display systems, Flight instruments, Navigation charts, Photographic projectors, Programming (Computers)

The report describes a revision in a cinema method of simulating low-altitude flight. Cockpit instruments used in dead reckoning were activated and synchronized with the motion picture scene. The throttle control was linked to the projector motor to provide the pilot with control of the simulated speed of the aircraft. An automated response system was devised to provide more accurate performance measurement, and the experimental procedure was revised to provide a more effective practice session prior to test sessions. A methodological study showed that the new experimental method improved geographic orientation in pilots during simulated flight. (Author)

1/3. AIRCRAFT

AD-624 685 Fld. 1/3, 1/5, 15/7
CFSTI Prices: HC $5.00 MF $1.00
ARIZONA UNIV TUCSON
DEVELOPMENT AND APPLICATION OF A METHOD TO DETERMINE AIRCRAFT FEASIBILITY FOR ISOLATED AREA SUPPORT.
Master's thesis,
by John LeRoy Moore. Jun 66, 177p. Contract AF33 (608)-1204
Unclassified report

Descriptors: (*Air transportation, Feasibility studies), Short take-off planes, Costs, Operation, Optimization, Transport planes, Maintenance. Armed forces transportation

The purpose of this study is: (1) To develop a method which will allow the comparison of various aircraft with respect to their economic and physical feasibility to conduct the isolated area operation, and (2) To apply the method and evaluate classes and individual types of cargo aircraft as major parameters affecting feasibility are varied.

AD-624 716 Fld. 1/3, 21/5
CFSTI Prices: HC $4.00 MF $0.75
HILLER AIRCRAFT DIV FAIRCHILD HILLER CORP PALO ALTO CALIF
HEAVY-LIFT TIP TURBOJET ROTOR SYSTEM. VOLUME XI. ENGINE DESIGN.
Technical rept.
Oct 65, 111p. Contract DA-44-177-AMC-25 (T) Proj. DA-1M121401D14412 USAAVLABS TR-64-68
Unclassified report

Prepared in cooperation with Continental Aviation and Engineering Corp., Detroit, Mich., rept. no. CAE-942. See also AD-624 814.

Descriptors: (*Helicopter engines, Design), (*Turbojet engines, Design), (*Helicopter rotors, Design), Rotor blades (Rotary wings), Hovering, Fuel pumps, Jet engine inlets, Lift

The report discusses the design of the Model 357-1 engine for rotor tip operational environment. The detail design meets requirements of MIL-E-5007B except for items peculiar to rotor tip operation. These items include operational attitudes, effect of continuous gyroscopic couples and high g field environment. The report includes an analytical design analysis of the static structure, rotating elements, bearings, accessory drives, lubrication system, and miscellaneous engine parts. (Author)

AD-624 762 Fld. 1/3
CFSTI Prices: HC $4.00 MF $1.00
HILLER AIRCRAFT DIV FAIRCHILD HILLER CORP PALO ALTO CALIF
HEAVY-LIFT TURBOJET ROTOR SYSTEM. VOLUME III. DESIGN LAYOUT STUDIES.
Technical rept.
Oct 65, 113p. Rept. no. Engineering-64-43
Contract DA-44-177-AMC-25 (T) Proj. DA-1M12401-D14412 USAAVLABS TR-64-68
Unclassified report

Descriptors: (*Rotor blades (Rotary wings), Design), (*Helicopter rotors, Design), Turbojet engines, Helicopter engines, Helicopters, Lift

The report describes the design layout studies performed during the preliminary design of a tip turbojet rotor system applicable to a helicopter of 60,000 pounds to 80,000 pounds gross weight. The basic rotor system geometry for which these studies were performed was established by means of a parametric design study. Design investigations were directed primarily towards the components above the attachment of the rotor system to the airframe. These included rotor hub and blade retention configuration, rotor blade structural arrangement, power plant installation, flight controls, and airframe/rotor mounted fuel, lubrication, electrical, engine starting, and power management systems. Consideration was also given to tail rotor and accessories drive systems. These design studies and associated stress and weight analyses have established the practicability of the design and fabrication of the tip turbojet rotor system, as well as providing verification for the systems' weights established by the parametric design study weight equations. Development of a tip turbojet helicopter of 60,000 pounds to 80,000 pounds gross weight has been found to be well within the state of the art of all technologies associated with the design and fabrication of an aircraft of this type. (Author)

AD-624 763 Fld. 1/3
CFSTI Prices: HC $4.00 MF $0.75
HILLER AIRCRAFT DIV FAIRCHILD HILLER CORP PALO ALTO CALIF
HEAVY-LIFT TURBOJET ROTOR SYSTEM. VOLUME IV. STATIC AND DYNAMIC LOADS.
Technical rept.
Oct 65, 117p. Rept. no. Engineering-64-44
Contract DA-44-177-AMC-25 (T) Proj. DA-1M12-1401D14412 USAAVLABS TR-64-68
Unclassified report

See also AD-624 762.

Descriptors: (*Helicopter rotors, Design), Loading (Mechanics), Structural parts, Turbojet engines, Rotor blades (Rotary wings), Helicopters, Lift

The report presents the structural design criteria, static design loads, and dynamic design loads for the Model 1108 helicopter. The volume is the basis for the structural design and analysis of the tip turbojet main rotor system. (Author)

AD-624 764 Fld. 1/3
CFSTI Prices: HC $3.00 MF $0.50
HILLER AIRCRAFT DIV FAIRCHILD HILLER CORP PALO ALTO CALIF
HEAVY-LIFT TIP TURBOJET ROTOR SYSTEM. VOLUME VI. DYNAMIC AND AEROELASTIC STUDIES.
Technical rept.
Oct 65, 55p. Rept. no. hiller-ER-64-46
Contract DA-44-177-AMC-25 (T) Task 1M121401D-14412
Unclassified report

See also AD-624 763.

Descriptors: (*Helicopter rotors, Design), (*Rotor blades (Rotary wings), Aerodynamic characteristics), Helicopter engines, Turbojet engines, Lift, Aeroelasticity, Frequency, Flutter, Simulation, Analog computers, Helicopters

The studies pertain to dynamic and aeroelastic phenomena of the rotor system for a heavy-lift helicopter employing turbojet engines mounted at the tips of the rotor blades. A majority of the rotor blade frequency and blade flutter boundary work was accomplished using a lumped mass rotor blade simulation on a direct analog computer. The important results of these studies as well as other dynamic investigations which are necessary to insure adequate helicopter performance are included. (Author)

AD-624 813 Fld. 1/3
CFSTI Prices: HC $2.00 MF $0.50
HILLER AIRCRAFT DIV FAIRCHILD HILLER CORP PALO ALTO CALIF
HEAVY-LIFT TIP TURBOJET ROTOR SYSTEM. VOLUME VII. WEIGHT AND BALANCE STUDIES.
Technical rept.
Oct 65, 30p. Rept. no. Hiller-ER-64-47
Contract DA-44-177-AMC-25 (T) Task DA-1M121401D14412
USAAVLABS TR-64-68
Unclassified report

See also AD-624 764.

Descriptors: (*Helicopter rotors, Design), (*Helicopters, Weight), Statistical analysis, Rotor blades (Rotary wings), Drag, Lift, Helicopter engines, Turbojet engines, Center of gravity

The report discusses statistical, analytical, and empirical weight analysis methods used to evaluate the empty weight of the helicopter. Blade lag characteristics are also discussed, including an analysis showing blade lag angles with one and two engines inoperative. Included are aircraft balance predictions. (Author)

AD-624 814 Fld. 1/3
CFSTI Prices: HC $8.40 MF $2.25
HILLER AIRCRAFT DIV FAIRCHILD HILLER CORP PALO ALTO CALIF
HEAVY-LIFT TIP TURBOJET ROTOR SYSTEM. VOLUME VIII. WIND-TUNNEL STUDIES.
Technical rept.
Oct 65, 540p. Rept. no. Engineering-64-48
Contract DA-44-177-AMC-25 (T) Proj. DA-1M1214-01D14412 USAAVLABS TR-64-68
Unclassified report

See also AD-624 813.

Descriptors: (*Helicopter rotors, Design), (*Rotor blades (Rotary wings), Model tests), (*Nacelles, Model tests), Aerodynamic configurations, Wind tunnel models, Lift, Turbojet engines, Helicopters, Hypersonic flow

Wind-tunnel tests were conducted to provide nacelle design information which would assist in the design of the tip turbojet installation. The model was constructed to provide for single, over-under, and side-by-side engine arrangements. The nacelle loads were measured with a six-component strain-gage balance. Tests were conducted at nacelle Reynolds Numbers from 450,000 to 1,830,000 with most of the data taken at the higher value. The model pitch angle was varied from -3 degrees to +12 degrees and the yaw angle was varied from -20 degrees to +20 degrees. Nacelle inlet to freestream velocity ratios were varied from 0 to .7625, the maximum obtainable with freestream total pressure supplying the energy necessary to overcome internal losses. (Author)

AD-624 822 Fld. 1/3, 21/5
CFSTI Prices: HC $5.00 MF $1.00
HILLER AIRCRAFT DIV FAIRCHILD HILLER CORP PALO ALTO CALIF
HEAVY-LIFT TURBOJET ROTOR SYSTEM. VOLUME XII. FUEL PUMP AND CONTROL SYSTEM DESIGN.
Technical rept.
Oct 65, 152p. Contract DA-44-177-AMC-25 (T) Proj. DA-1M121401-D14412 USAAVLABS TR-64-68
Unclassified report

Prepared in cooperation with Continental Aviation and Engineering Corp., Detroit, Mich., rept. no. CAE-943. See also AD-624 716.

Descriptors: (*Helicopter rotors, Design), (*Fuel pumps, Design), (*Helicopter engines, Fuel pumps), Control systems, Turbojet engines, Hovering, Feasibility studies, Lift

The report discusses the proposal of a combination hydromechanical-electronic fuel control and fuel pump for control of a helicopter rotor tip mounted engine (CAE Model 357-1) which during normal operation is subjected to 235g of centrifugal force. The proposed preliminary design is submitted to meet the specification requirement of the engine in the tip turbojet hover mode of operation. Analytical design studies and preliminary test results show feasibility of this design for operation in a 235g field. (Author)

AD-624 478 **See Fld. 9/5**

AD-624 539 **See Fld. 11/6**

AD-624 579 **See Fld. 1/4**

AD-624 592 **See Fld. 22/2**

AD-624 607 **See Fld. 19/1**

AD-624 679 **See Fld. 15/3**

1/4. AIRCRAFT FLIGHT INSTRUMENTATION

AD-624 579 Fld. 1/4, 5/10, 1/3
CFSTI Prices: HC $2.00 MF $0.50
BELL HELICOPTER CO FORT WORTH TEX
CONTACT ANALOG SIMULATOR EVALUATIONS: THE INFLUENCE OF SCREEN SIZE AND IMAGE FIELD OF VIEW.
Rept. on Joint Army-Navy Aircraft Instrumentation Research,
by J. H. Emery, and D. J. Dougherty. Apr 65, 33p. Rept. no. d228-421-021
Contract Nonr-1670 (00)
Unclassified report

Rept. on Proj. JANAIR.

Descriptors: (*Vertical indicators, Display systems), Simulation, Hovering, Viewing screens, Landings, Approach, Analog systems, Pitch (Motion)

Measurement was made of the ability of four groups of pilots to perform a simulated rotary wing approach task under four display conditions of screen size and image field of view on the JANAIR contact analog vertical display. Two screen sizes tested were 6 inch square and 12 inch square. Measures of glideslope altitude, lateral track and airspeed control were recorded during the descent of the approach task. Flare overshoot, impact 'G' and final touchdown position were measured during the landing. Results indicate that image field of view did not differentially affect any of the six performance measures. Approach airspeed control was significantly better with the 12 inch square screen. Final touchdown position control was superior on the 6 inch square screen. None of the remaining performance measures were differentially affected by screen size. It was concluded that pilot subjects with no previous training on the contact analog could adapt to the display condition that each was assigned, but it is recommended that a 1:1 relationship with the real world be used if intermittent VFR-IFR flight were in force or if it were desirable to superposition other information such as television or radar on the contact analog. (Author)

1/5. AIR FACILITIES

AD-624 685 **See Fld. 1/3**

AD-624 818 **See Fld. 5/3**

2/4. AGRONOMY AND HORTICULTURE

AD-624 625 Fld. 2/4, 6/3, 14/5
CFSTI Prices: HC $2.00 MF $0.50
COLD REGIONS RESEARCH AND ENGINEERING LAB HANOVER N H
INVESTIGATION OF SUGAR CANE VIGOR WITH AERIAL PHOTOGRAPHY IN PUERTO RICO.
Special rept.,
by Philip L. Johnson. Jun 65, 35p. Rept. no. sr-93
Proj. DA-1L013001A91A
Unclassified report

Descriptors: (*Plants (Botany), Puerto Rico), (*Aerial photography, Plants (Botany)), (*Agriculture, Puerto Rico), Virus diseases, Growth, Diseases, Soils, Salinity, Herbicides, Iron, Moisture, Photographic film

Reduction in sugar cane yield was reflected in the photographic signature of four emulsions. Seven conditions contributing to low vigor were examined: Ratoon stunting disease, yellow aphid, lesser corn stalk borer, soil salinity, herbicide suppression, iron deficiency, and soil moisture deficit. In most of the conditions tested the two color emulsions were more informative than the black and white films. In all four films, reductions in vigor were more obvious than identity of the casual agent. Identification of the cause of low vigor (either a biological agent or a physiological condition) was difficult on aerial photography in these tests. As predicted, drought, yellow aphid infestation, and severe iron chlorosis were easily distinguished. Other conditions such as lesser corn stalk borer and RSD confirmed on the ground were not specific in their signatures on aerial film. The multispectral aspect of the four emulsions aided interpretation; that is, negative results on one film were useful in combination with positive signatures on other films.

2/6. FORESTRY

AD-624 570 Fld. 2/6
CFSTI Prices: HC $1.00 MF $0.50
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER WASHINGTON D C
SIBERIAN CEDAR ON PINE ROOTSTOCK,
by M. Ignatenko. Nov 65, 5p. Rept. no. fstc-381-T65-571
Proj. G7-1050 TT 65-64769
Unclassified report

Trans. of Nauka i Zhizn (USSR) v32 n6 p10 1965.

Descriptors: (*Trees, Transplantation), (*Forestry, USSR), Plants (Botany), Metabolism, Wood

To eliminate the slow growth of the cedar, biologists have proposed grafting scions from bearing cedar trees onto a common pine rootstock.

3/1. ASTRONOMY

AD-624 731 Fld. 3/1
LINCOLN LAB MASS INST OF TECH LEXINGTON
RADIO ECHO OBSERVATIONS OF VENUS AND MERCURY AT 23 CM WAVELENGTH,
by John V. Evans, Richard A. Brockelman, John C. Henry, Gerald M. Hyde, and Leon G. Kraft.
11 May 65, 17p. Rept. no. ja-2573
Contract AF19 (628)-5167 ESD TDR-65-54

Unclassified report

Availability: Published in Astronomical Journal V70 N7 P486-501 Sep 1965. Copies to DDC users only.

Descriptors: (*Mercury (Planet), Radio astronomy), (*Venus, Radio astronomy), Radar echo areas, Doppler effect, Surface properties, Range (Distance), Scattering

Radar observations in 1964 of the planets Venus and Mercury conducted at the Millstone Hill radar observatory are presented. The radar equipment employed for this work, together with details of its operation, and the data gathering and reduction procedures are described. Venus was observed from March to October at approximately weekly intervals. The distance to Venus was determined with an accuracy of about =75 km at the beginning and end of this period and =1.5 km throughout June and July. The velocity of Venus with respect to the earth was also measured, the accuracy varying between =10 to =1 cm/sec. These values are tabulated here and are currently being employed to refine some of the elements of the orbits of earth and Venus and the value for the astronomical unit. Echoes from Mercury were obtained on five days around the inferior conjunction occurring on 30 April 1964. The radar cross section appeared to be about 10% of the projected area of the disk. The radar cross section for Venus had an average value of 15%, which is close to most other values at meter and decimeter wavelengths. The scattering properties of Venus were explored using a variety of pulse lengths in order to fully resolve different regions. It is concluded that Venus has a surface that is considerably smoother than the moon's. The average slope of surface elements in the range of about 5 to 50 m across appears to be 8 degrees. (Author)

3/2. ASTROPHYSICS

AD-624 275 Fld. 3/2
HARVARD COLL OBSERVATORY CAMBRIDGE MASS SOLAR DEPT
COMPARISON OF ATOMIC LS-COUPLING LINE AND MULTIPLET STRENGTHS WITH OBSERVATIONS OF FE I.
Revised ed.,
by Bruce W. Shore. 8 Feb 65, 18p. Rept. no. sr-4
Contract AF19 (628)-3322 ,AF19 (604)-4962
Proj. AF-7649 Task 764906
AFCRL 65-72

Unclassified report

Revision of manuscript submitted 26 Oct 64.

Availability: Published in the Astrophysical Journal V142 N1 P94-105 1 Jul 1965. Copies to DDC users only.

Descriptors: (*Solar spectrum, Atomic spectroscopy), (*Line spectrum, Iron), Magneto-optic effect, Electron transitions, Wave functions, Atomic structure

Observed gf-values for neutral iron given by Corliss and Warner have been compared with predictions from simple LS-genealogy wave functions for 700 lines in 135 multiplets of 10 transition arrays. The transition integral was left unspecified; the comparison provided an empirical 'transition integral' for each line. The variation of this from line to line within a multiplet generally indicates the mixing of parentage and configurations. Observed variations of this parameter are discussed. (Author)

AD-624 713 Fld. 3/2, 7/4
CFSTI Prices: HC $2.00 MF $0.50
HARVARD COLL OBSERVATORY CAMBRIDGE MASS
ASTROPHYSICAL IMPLICATIONS OF AUTOIONIZATION.
Scientific rept.,
by Leo Goldberg. Nov 65, 36p. Rept. no. scientific-4
Contract Nonr-1866 (48) Grant ,NsG-438

Unclassified report

Descriptors: (*Ionization, Astrophysics), Stars, Solar atmosphere, Interstellar matter, Recombination reactions, Line spectrum, Continuous spectrum, Shock tubes

The role of autoionization in astrophysical phenomena is investigated with particular application to (1) formation of spectral lines and continua and (2) ionization equilibrium in stellar atmospheres and the interstellar medium. (Author)

3/3. CELESTIAL MECHANICS

AD-624 568 Fld. 3/3, 7/4
CFSTI Prices: HC $3.00 MF $0.75
AERONUTRONIC DIV PHILCO CORP NEWPORT BEACH CALIF
ABSORPTION BY CO2 BETWEEN 6600 AND 7125/CM (1.4 MICRON REGION).
Scientific rept.,
by Darrell E. Burch, David A. Gryvnak, and Richard R. Patty. 25 Jun 65, 68p. Rept. no. pub. U-3127
Contract Nonr-3560 (00) ,ARPA Order-237

Unclassified report

Availability: Microfiche only after original copies exhausted.

Descriptors: (*Infrared radiation, Absorption), (*Carbon dioxide, Absorption), (*Planetary atmospheres, Absorption spectrum), Tables, Line spectrum

The absorption by CO2 in the 6600 - 7125/cm region (near 1.4 microns) has been studied with a spectrometer having a spectral resolution of about 1/cm. Spectra were obtained for 38 samples of CO2 and CO2 + N2 with pressures as high as 15 atmospheres and paths as long as 933 meters. The strengths of the important bands and the half-widths of several lines have been measured. Photographs of the spectra of all the samples as well as a table of transmittance versus wavenumber are included. (Author)

AD-624 475 See Fld. 8/4

4/1. ATMOSPHERIC PHYSICS

AD-624 294 Fld. 4/1, 8/7, 8/10
CFSTI Prices: HC $2.00 MF $0.50
WASHINGTON UNIV SEATTLE DEPT OF ATMOSPHERIC SCIENCES
ATMOSPHERIC, EARTH AND OCEANOGRAPHIC RESEARCH.
Annual rept. no. 5, 1 Nov 64-31 Oct 65.
1 Dec 65, 30 p. Contract Nonr-477 (24) Grant, NSF-GP-2971 Proj. NR-307 252

Unclassified report

Availability: Microfiche only after original copies exhausted.

Descriptors: (*Atmosphere, Scientific research), (*Geology, Scientific research), (*Oceanology, Scientific research), Arctic regions, Ice islands, Weather stations, Solar radiation, Carbon dioxide, Ozone, Sea water, Ice, Geophysics

Research programs include radiation, carbon dioxide, ozone, sea ice physics, and micro-oceanography.

AD-624 323 Fld. 4/1, 20/6
CFSTI Prices: HC $2.00 MF $0.50
NAVAL RESEARCH LAB WASHINGTON DC
AN ATLAS OF THE ABSORPTION OF THE ATMOSPHERE FROM 8512 TO 11, 600A.
Interim rept.,
by J. A. Curcio, R. Eckardt, C. V. Acton, and T. H. Cosden. 15 Oct 65, 29p. Rept. no. nrl-6352
Proj. RR-004-02-42-5152

Unclassified report

Descriptors: (*Atmosphere, Absorption spectrum), (*Absorption spectrum, Atmosphere), Optics, Marine meteorology, Chesapeake Bay, Neodymium, Lasers, Light transmission, Absorption, Water vapor, Spectroscopy

This report presents an atlas of the atmospheric spectral absorption structure of a 10.1-mile sea level path when the atmosphere contained 4.5 cm of precipitable water and when the atmosphere contained 12 cm of precipitatable water. A neodymium glass laser spectrum is also included and shown to emit in a spectral region which is particularly free of atmospheric absorption. (Author)

AD-624 392 Fld. 4/1
CFSTI Prices: HC $2.00 MF $0.50
PENNSYLVANIA STATE UNIV UNIVERSITY PARK IONOSPHERE RESEARCH LAB
DETERMINATION OF IONOSPHERIC LOSS COEFFICIENTS FROM OBSERVATIONS ON SATELLITE X-RAY FLUXES AND SUDDEN IONOSPHERIC DISTURBANCES.
Interim scientific rept.,
by Ashesh P. Mitra. 1 Oct 65, 32p. Rept. no. sr-252
Contract AF19 (628)-4014 Grant ,NSF-GP-2914
Proj. DASA-5710 ,AF-8605 Task 860502, 07.010
AFCRL 65-77

Unclassified report

Descriptors: (*Atmospheric sounding, Scientific satellites), (*Ionosphere, Ionization), (*Ionization, Ionosphere), Solar flares, Xray spectrum, Ionospheric disturbances, Extraterrestrial radio waves, Attenuation, Dissociation, Recombination reactions, Ions, Absorption

Use has been made of recent satellite measurements of solar flare X-ray flux, and where available its spectral distribution, for detailed quantitative examination of the accompanying Sudden Ionospheric Disturbances, principally Sudden Cosmic Noise Absorption (SCNA). From observed or assumed spectral distributions of the X-ray flux, profiles of ion production rates are obtained for a few specific events. A comparison of these production rates with the observed excess attenuation during the peak of the SCNA leads to an upper limit for the value of the effective dissociative recombination coefficient alpha sub c when negative ions are ignored. These limiting values were found to range between 0.0000001 to 0.000001 cc/s. When the effect of negative ions is considered, alpha sub c is reduced to values around (1-4) x 10 to the minus 8th power cc/s. An extension of the above method involves the simultaneous use of SCNAs and SPAs at very low frequencies, along with X-ray spectral data. When this is done, it is possible to obtain information on both the dissociative recombination coefficient and negative ions. (Author)

AD-624 393 Fld. 4/1, 20/14
CFSTI Prices: HC $2.00 MF $0.50
PENNSYLVANIA STATE UNIV UNIVERSITY PARK IONOSPHERE RESEARCH LAB
THE MEASUREMENT OF PHASE AND AMPLITUDE RADIO WAVE INTERACTION AT UNIVERSITY PARK, PENNSYLVANIA, FOR APRIL-MAY-JUNE, 1965.
Interim scientific rept.,
by Anthony J. Ferraro, and Hai Sup Lee. 15 Aug 65, 46p. Rept. no. sr-250
Contract AF19 (628)-4014 Grant ,NSF-GP-846
Proj. AF-8605 Task 860502
AFCRL 65-77

Unclassified report

Descriptors: (*Luxembourg effect, Atmospheric sounding), (*Atmospheric sounding,

Luxembourg effect), (*Radio waves, Ionospheric propagation), (*Ionospheric propagation, Radio waves), Amplitude modulation, Phase modulation, Ionosphere, Electrons, Radiofrequency interference, Measurement, Physics laboratories, Pennsylvania

The objective of the present work is to study the properties of ionospheric D-region using radio wave interaction effect which is also commonly known as Luxembourg effect. The present technique closely follows that developed by Fejer (J. Atmosph. Terr. Phys. 7,322) (1955) for radio wave amplitude interaction experiment. However, the technique of measurement as well as the theory of radio wave interaction have been extended and generalized at the Ionosphere Research Laboratory by the introduction of complex coefficient of interaction T, to embody the effect of interaction on both the amplitude and the phase of radio waves.

AD-624 462 Fld. 4/1, 20/14
CFSTI Prices: HC $1.00 MF $0.50
AEROSPACE TECHNOLOGY DIV LIBRARY OF CONGRESS WASHINGTON D C
THE LOWEST ELECTRON DENSITY NECESSARY FOR WAVE REFLECTION FROM THE IONOSPHERIC D-LAYER,
by Daniel W. Michaels. 1 Dec 65, 7p. Rept. no. atd-65-108
TT 65-64726

Unclassified report

Trans. of Bulgarska Akademiya na Naukite. Doklady, v18 n7 p631-4 1965. Rept. on Surveys of Soviet Scientific and Technical Literature.

Descriptors: (*Electron density, Electromagnetic wave reflections), (*Electromagnetic wave reflections, Ionosphere), (*Ionosphere, Electromagnetic wave reflections), Magnetooptic effect, Plasma physics, Geophysics, USSR

AD-624 541 Fld. 4/1, 4/2
CFSTI Prices: HC $3.00 MF $0.75
FLORIDA STATE UNIV TALLAHASSEE DEPT OF METEOROLOGY
THE DYNAMICS OF STRATOSPHERIC CIRCULATIONS.
Final rept. 1 Jul 62-30 Jun 65,
by Richard A. Craig. 31 Jul 65, 92p. Contract AF19 (628)-394 Proj. AF-8628 Task 862807
AFCRL 65-58

Unclassified report

Descriptors: (*Stratosphere, Meteorological parameters), (*Atmospheric sounding, Stratosphere), Ozone, Atmospheric motion, Thermodynamics, Geophysics, Florida

This report covers the following scientific investigations of the lower stratosphere: the energy budget, the transmissivity of an Elsasser band, the ozone-measuring program, velocity divergence, the vorticity budget, ageostrophic motions, and preparation of data for a study of 1958 stratospheric warming.

AD-624 711 Fld. 4/1, 14/4
CFSTI Prices: HC $1.00 MF $0.50
JOHNS HOPKINS UNIV BALTIMORE MD LAB OF ASTROPHYSICS AND PHYSICAL METEOROLOGY
MOISTURE CONTAMINATION AT ALTITUDE BY BALLOON AND ASSOCIATED EQUIPMENT,
by R. Zander 1965, 13p.

Unclassified report

Descriptors: (*Stratosphere, Absorption spectrum), (*Balloon equipment, Moisture), (*Moisture, Contamination), Water, Band spectrum, Balloons, Humidity, Astrophysics

Spectra of the 6.3 micron water band were recorded by a balloon-borne spectrometer at 23.5 km altitude and over a wide range of sun elevations. Reduced in terms of transmittance they show an unexpected increase in humidity with increasing solar elevation angle. This feature is interpreted as a contamination by moisture carried at altitude by the package, the balloon, and associated train. An analysis based on this interpretation gives 0.0000105 as the corrected stratospheric mixing ratio above 23.5 km. (Author)

AD-624 855 Fld. 4/1
CFSTI Prices: HC $3.00 MF $0.75
ARMY ELECTRONICS COMMAND FORT MONMOUTH N J
IMPROVEMENT IN ACCURACY OF THE ML-419 RADIOSONDE TEMPERATURE ELEMENT FOR HEIGHTS ABOVE 50,000 FEET AND UP TO 150,000 FEET.
Technical rept.,
by Ralph W. Armstrong. Oct 65, 62p. Rept. no. ecom-2634
Proj. DA-1VO-14501-B-53A Task 1VO-14501-B-53A-02

Unclassified report

Descriptors: (*Radiosondes, Temperature sensitive elements), (*Temperature sensitive elements, Radiosondes), (*Atmospheric temperature, Measurement), Atmospheric sounding, Meteorological instruments, Optical coatings, Absorption, Convection (Atmospheric)

The problem of radiosonde temperature measurement is discussed, with particular reference to the U. S. Army ML-419 element, and the study of it by Prof. J. H. Shaw of Ohio State University under a U. S. Army contract. An improved reflective coating is proposed; and a method is presented of correcting for radiation error by use of three sensing elements of different radiation absorptivities, but otherwise identical, and identically exposed to convection and to radiation. The method requires accurate reading of the element temperatures, accurate knowledge of the absorption coefficients, close equality of convection heat transfer characteristics, and close equality of exposure to convection and radiation. Other methods of modifying the ML-419 for increased accuracy of air-temperature measurement are discussed. (Author)

AD-624 253 **See Fld. 20/14**

AD-624 375 **See Fld. 20/9**

AD-624 507 **See Fld. 8/14**

AD-624 615 **See Fld. 22/2**

AD-624 654 **See Fld. 17/2**

AD-624 776 **See Fld. 8/14**

AD-624 847 **See Fld. 20/14**

4/2. METEOROLOGY

AD-624 505 Fld. 4/2
CFSTI Prices: HC $2.00 MF $0.50
WEATHER BUREAU WASHINGTON D C
FREQUENCY DISTRIBUTIONS OF UPPER WINDS IN THE GREENLAND AREA.
Interim rept. no. 4, 15 Sep 63-15 Mar 64,
by W. L. Schallert. 15 Mar 64, 38p. Proj. DA-1V0-14501-B-53A-05

Unclassified report

Descriptors: (*Wind, Greenland), Arctic areas, Atmospheric motion, Meteorological charts, Meteorology

Wind roses have been prepared for a group of stations on Greenland, and in the surrounding area, at six lexels in the free atmosphere. The roses have been entered at the appropriate locations on a map of the area to provide a concise areal display of the frequency distributions of the wind direction. Mean wind speeds from each compass direction are shown as well. (Author)

AD-624 627 Fld. 4/2, 9/2
CFSTI Prices: HC $1.00 MF $0.50
ARMY ELECTRONICS RESEARCH AND DEVELOPMENT ACTIVITY WHITE SANDS MISSILE RANGE N MEX
SAMPLING AND DIGITIZING OF METEOROLOGICAL DATA
by R. G. Glass,Jr.. Nov 65, 16p. Task DA-1V650212A127-02
ECOM 5021

Unclassified report

Descriptors: (*Meteorological parameters, Analogto-digital converters), (*Data processing systems, Meteorological parameters), (*Sampling, Meteorological parameters), Telemeter systems, Atmospheric sounding, Information theory

Requirements exist for higher response meteorological instrumentation and for the digitizing of meteorological data for digital computers. A study of two of the major factors, sensor response and sampling rates, has been made. A method is presented for converting distance constant to equivalent frequency, with the results in terms of an equation. In addition, sampling rate requirements within the framework of information theory considerations are discussed. (Author)

AD-624 665 Fld. 4/2
CFSTI Prices: HC $2.00 MF $0.50
TEXAS A AND M UNIV COLLEGE STATION
SPACE VARIATIONS IN AXIS HEIGHT OF THE JET STREAM CORE.
Master's thesis,
by Cooke Hearon Leutwyler. Aug 65, 48p. Contract AF33 (608)-1284

Unclassified report

Descriptors: (*Jet streams (Meteorology), Analysis of variance), Velocity, Temperature, Troposphere, Weather forecasting

Conventional upper air data and analyses for a six-month period were examined for the variations in height that occur along the jet stream axis. From that period, 451 jet streams were divided into eight different classes according to the flow patterns in the jet streams. There was sufficient data in seven of the classes to derive mean curves, the standard deviation from the curves, and the extreme deviation for the class. The mean curves derived represent the first comprehensive group of models of the space variations in axis height of the jet stream core. The theoretical relationship between the upward or downward slope of the jet stream axis and the temperature field in the vicinity of the axis is discussed. A specific jet stream situation is examined to show the general validity of the theoretical considerations. (Author)

AD-624 774 Fld. 4/2
CFSTI Prices: HC $2.00 MF $0.50
NAVAL WEAPONS LAB DAHLGREN VA
ATMOSPHERIC CONVECTION PRODUCED BY LOCAL HEATING OR COOLING OF A HORIZONTAL SURFACE,
by Hans J. Lugt, and Ernst W. Schwiderski. Oct 65, 47p. Rept. no. nwl-1999

Unclassified report

Descriptors: (*Convection (Atmospheric), Laminar flow), Heating, Cooling, Axially symmetric flow, Surfaces, Coriolis effect, Vortices, Atmospheric temperature, Atmospheric motion, Pressure, Stability

The paper is concerned with the study of steady laminar convection flows, which are produced by nonuniform asixymmetric heating or cooling of a horizontal surface in the presence of the Coriolis force. First order approximations are obtained by means of adjustable local boundary layer assumptions. Velocity, pressure, and temperature fields are computed for various Prandtl, Grashof, and Eckert numbers as well as for various Coriolis par-

ameters. Since the radial inflow causes a cyclonic motion, and the radial outflow an anticyclonic motion, the local heating of a surface generates in the northern hemisphere a vortex which is counterclockwise in the lower part of the boundary layer and clockwise in the upper part. For a cooled surface the situation is reversed. Critical Grashof numbers and Coriolis parameters exist beyond which the flow field becomes unstable. The tendency toward instability is decreased by the Coriolis force. (Author)

AD-624 496 See Fld. 18/3

AD-624 541 See Fld. 4/1

5/1. ADMINISTRATION AND MANAGEMENT

AD-624 282 Fld. 5/1, 5/4, 5/6
CFSTI Prices: HC $3.00 MF $0.75
OFFICE OF THE CHIEF OF RESEARCH AND DEVELOPMENT (ARMY) WASHINGTON D C
PRINCIPAL ADDRESSES OF THE 1965 U. S. ARMY NATIONAL JUNIOR SCIENCE AND HUMANITIES SYMPOSIUM, 29-30 APRIL 1965.
30 Apr 65, 65p.
Unclassified report

Descriptors: (*Army research, Symposia), Foreign policy, Leadership, United States Government, Government (Foreign), Africa, Engineering, Scientific research, Medical research, Human engineering

Contents: The broad base of Army research; Challenges and opportunities for United States Leadership in the developing world; Operation crossroads, Africa; The role of engineering and technology in our future; Science in the making.

AD-624 447 Fld. 5/1, 14/1
CFSTI Prices: HC $3.00 MF $0.50
CENTER FOR NAVAL ANALYSES WASHINGTON D C SYSTEMS EVALUATION GROUP
CONCEPTS AND TECHNIQUES FOR SUMMARIZING DEFENSE SYSTEM COSTS,
by J. W. Noah. 24 Sep 65, 55p. Rept. no. research Contribution-1
Contract Nonr-3732 (00)
Unclassified report

Descriptors: (*Management planning, Armed forces budgets), (*Cost effectiveness, Department of Defense), (*Operations research, Cost effectiveness), (*Armed forces budgets, Management planning), Costs, Armed forces research, Armed forces operations, Economics, Value engineering

Some techniques used to summarize total costs employed in systems analyses are classified, described, and compared. Their respective advantages and disadvantages are given, and some implications of each are brought out. Five cost-summarizing techniques are selected and distinctions between them are based on common usage. The procedures are termed: Five-Year System Cost, period outlay, net cost, present cost, annual cost. Necessary to their discussion is an understanding of the major types and general content of defense system cost analyses, the concept of remaining value, and the principle that money has time value. A brief section on each of these subjects with appropriate references precedes the discussion of the methods for summarizing costs. (Author)

AD-624 664 Fld. 5/1, 12/1
CFSTI Prices: HC $3.00 MF $0.75
TEXAS A AND M UNIV COLLEGE STATION
MONTE CARLO TECHNIQUES OF SIMULATION APPLIED TO A SINGLE ITEM INVENTORY SYSTEM.
Master's thesis,
by William Murray Aldred,Jr.. Aug 65, 82p.
Contract AF33 (608)-1284
Unclassified report

Descriptors: (*Monte Carlo method, Inventory control), (*Inventory control, Monte Carlo method), Simulation, Inventory analysis, Stock level control, Management planning

This study is devoted to the following objectives: (1) A brief introduction of the basic principles underlying inventory control problems along with a discussion of selected approaches to their solution; (2) A description of the usefulness of simulation studies of inventory systems and the basic concepts involved; and (3) A thorough analysis of a real world inventory problem and the two computer programs written to simulate the situation and evaluate the economic impact of varying local inventory policies.

AD-624 729 Fld. 5/1
CFSTI Prices: HC $1.00 MF $0.50
CARNEGIE INST OF TECH PITTSBURGH PA GRADUATE SCHOOL OF INDUSTRIAL ADMINISTRATION
MANAGEMENT SCIENCES AND MANAGEMENT-SOME REQUIREMENTS FOR FURTHER DEVELOPMENT.
Management Sciences Research rept.,
by A. Charnes, and W. W. Cooper. Oct 65, 17p. Rept. no. msrr-53
Contract Nonr-760 (24) Proj. NR-047-048
Unclassified report

Prepared in cooperation with Northwestern Univ., Evanston, Ill. Technological Inst., Contract Nonr-1228 (10), Systems Research memo. 144.

Descriptors: (*Management engineering, Operations research), Research program administration

The specific topic discussed is implementation of management research.

AD-624 730 Fld. 5/1, 5/2
CFSTI Prices: HC $1.00 MF $0.50
CARNEGIE INST OF TECH PITTSBURGH PA GRADUATE SCHOOL OF INDUSTRIAL ADMINISTRATION
PROPOSED RESEARCH ON MANAGEMENT INFORMATION SYSTEMS.
Management Sciences Research rept.,
by N. C. Churchill, C. H. Kriebel, and A. C. Stedry.. Oct 65, 22p. Rept. no. msrr-54
Contract Nonr-760 (24) Proj. NR-047-048
Unclassified report

Descriptors: (*Management engineering, Information retrieval), (*Information retrieval, Management engineering), Operations research, Decision making, Research program administration

The report discusses management information systems in connection with their use in managerial decision making. Areas are emphasized in which current and readily foreseeable developments in computer technology have made the research problems more apparent.

AD-624 856 Fld. 5/1, 14/1
CFSTI Prices: HC $3.00 MF $0.75
RAND CORP SANTA MONICA CALIF
THE IMPACT OF THE HIGH DEVELOPMENT COST OF ADVANCED FLIGHT PROPULSION SYSTEMS ON DEVELOPMENT POLICY,
by B. Pinkel. Oct 65, 72p. Rept. no. RM-4560-PR
Contract AF49 (638)-700
Unclassified report

Descriptors: (*Propulsion, Costs), (*Management engineering, Propulsion), Management planning, Cost effectiveness, Engines + motors, Research program administration, Budgets, Design

A discussion of techniques for handling R nand D funds to reduce the investment risk in implementing programs for new propulsion systems, particularly systems which are novel and advanced. To guide the funding management, relevant R and D activities are described in detail, followed by a discussion of criteria to be met before an engine qualifies for consideration. (Author)

AD-624 443 See Fld. 15/5

AD-624 670 See Fld. 5/10

AD-624 810 See Fld. 14/1

5/2. DOCUMENTATION AND INFORMATION TECHNOLOGY

AD-624 448 Fld. 5/2
CFSTI Prices: HC $2.00 MF $0.50
INTERLABORATORY COMMITTEE ON EDITING AND PUBLISHING CORONA CALIF
TECHNICAL REPORTS FOR QUICK READER COMPREHENSION,
by H. L. Chadbourne. Jul 61, 31p. Rept. no. ilcep-Monograph-2
Unclassified report

Descriptors: (*Reports, Reading), Preparation, Communication systems

R and D reports can be made to be equally suited to rapid scanning or scholarly reading. This is done by displaying the gist of the material in a series of selfcontained informational units, or modules, and by confining detail to the main test. Because the modules are independent of the text, they can be prepared in rough during the task work. The separate module idea also permits the author and a technical editor to collaborate on manuscript preparation so as to take maximum advantage of the talents of each. The reports thus produced conserve writing and reading time, suit the needs of different audiences, and are issued promptly after completion of the work being described. The technique has been proved experimentally. (Author)

AD-624 560 Fld. 5/2
CFSTI Prices: HC $3.50 MF $2.75
FEDERAL COUNCIL FOR SCIENCE/TECHNOLOGY WASHINGTON D C COMMITTEE ON SCIENTIFIC/TECHNICAL INFORMATION
RECOMMENDATIONS FOR NATIONAL DOCUMENT HANDLING SYSTEMS IN SCIENCE AND TECHNOLOGY.
Nov 65, 608p. PB 168 267
Unclassified report

Descriptors: (*Documentation, United States Government), (*Technical information centers, United States Government), Documentation, Systems engineering, Management engineering, Scientific research

The report contains recommendations for a national document-handling system in science and technology. Problems in the scientific and technical information and document area are considered, and a set of principles and requirements for a national system are presented. The preferred system and four alternative approaches are developed and evaluated.

AD-624 305 See Fld. 5/7

AD-624 449 See Fld. 5/9

AD-624 521 See Fld. 9/2

AD-624 658 See Fld. 9/2

AD-624 730 See Fld. 5/1

5/3. ECONOMICS

AD-624 254 Fld. 5/3, 12/1
CFSTI Prices: HC $2.00 MF $0.50
PRINCETON UNIV N J ECONOMETRIC RESEARCH PROGRAM
NONLINEAR SIMULTANEOUS EQUATIONS: ESTIMATION AND PREDICTION.
Research memo.,
by Stephen M. Goldfeld, and Richard E. Quandt.
21 Oct 65, 42p. Rept. no. rm-79
Contract Nonr-1858 (16) Grant ,NSF-G-24462
Proj. NR-047-086
Unclassified report

Descriptors: (*Economics, Simultaneous equations), (*Sampling, Economics), Mathematical models, Mathematical prediction, Least squares method, Analysis of variance

The small sample properties of certain estimators of the coefficients of systems of simultaneous nonlinear equations are investigated. Sampling experiments are used in connection with two specific nonlinear models. The estimating methods investigated comprise direct least squares, various forms of two-stage least squares and full-information maximum likelihood. The relative performances of the various methods are evaluated on the basis of informal comparisons of their respective mean absolute errors and root mean square errors and also by more formal tests of significance. Direct least squares is found to be, as expected, the worst estimating method. The other two methods are rather more comparable with full-information maximum likelihood holding the edge for both theoretical and experimental reasons. (Author)

AD-624 535 Fld. 5/3
CFSTI Prices: HC $2.00 MF $0.50
STANFORD UNIV CALIF INST FOR MATHEMATICAL STUDIES IN THE SOCIAL SCIENCES
WAGE POLICY AND DISTRIBUTION THEORY.
Technical rept.,
by J. D. Pitchford. 1 Dec 65, 33p. Rept. no. tr-139
Contract Nonr-225 (50) Proj. NR-047-004
Unclassified report

Descriptors: (*Wages, Distribution theory), Factor analysis, Money, Labor, Industrial production

Previous approaches to wage policy have emphasized the average productivity of labour as a key variable in wage adjustment. This approach can be justified in a simple fixed input coefficient technology. The present paper investigates the problem of wage adjustment in a technology in which factor substitution is possible. (Author)

AD-624 699 Fld. 5/3
CFSTI Prices: HC $5.00 MF $1.00
RAND CORP SANTA MONICA CALIF
FARM EMPLOYMENT IN THE SOVIET UNION, 1928-1963,
by Nancy Nimitz. Nov 65, 164p. Rept. no. RM-4623-PR
Contract AF49 (638)-700
Unclassified report

Descriptors: (*USSR, Economics), (*Agriculture, USSR), Government (Foreign), Communism, Employment, Labor, Production, Distribution (Economics), Statistical data

Estimates are presented of employment on private, collective, and state farms (excluding the war years), in man-days and in annual averages or equivalents in the Soviet Union. Emphasis is on the private and collective sectors, for which Soviet sources do not provide complete or consistent data. Besides comparing the estimates with other published series, and showing what they imply with regard to over-all labor productivity in agriculture, the report comments on utilization of collective farm labor, and assembles data bearing on incentives to work on the private plot (incomes of collective farm households from their plots compared with earnings for collective work, trends in the terms of trade, direct taxes, and other elements of government policy affecting the plot). (Author)

AD-624 775 Fld. 5/3, 15/3
CFSTI Prices: HC $1.00 MF $0.50
RAND CORP SANTA MONICA CALIF
THE INDIAN ECONOMY AND DEFENSE,
by George Rosen. Oct 65, 7p. Rept. no. p-3255
Unclassified report

Descriptors: (*Economics, India), (*India, National defense), Industrial production, Agriculture, Costs, Control, Management planning, Government (Foreign), Distribution (Economics)

The environment within which development planning takes place has changed drastically as a result of the recent fighting with Pakistan. This greater demand upon India's scarce resources should have profound implications for the Fourth Plan. Development and defense requirements will unquestionably be competitive in many important respects, the most important of which will be in the demands of foreign exchange; however, they can also be complementary to some extent, with investments for defense contributing to development and vice versa. But to minimize the competitive effects and maximize the complementary effects of defense expenditures calls for very careful review of existing Fourth Plan proposals. India has the resources, as well as the technical, administrative and economic skills in both the public and private sectors to meet the greater demands upon its developing economy that have arisen from the current crisis. What is required is the political will to take advantage of the capabilities that do exist. Without this political will the consequences can be chaotic and dangerous; with it the problems can be met with a minimum dislocation of both the economic development effort and of internal political stability. In fact, the success of the government in meeting these additional demands would contribute both to a higher long-run rate of economic development than otherwise, and to strengthening the public confidence in, and thus the political stability of, the central government.

AD-624 818 Fld. 5/3, 13/10, 1/5
CFSTI Prices: HC $1.00 MF $0.50
RAND CORP SANTA MONICA CALIF
SOVIET TRANSPORT AND COMMUNICATIONS: OUTPUT INDEXES, 1928-1962,
by N. M. Kaplan. Nov 65, 15p. Rept. no. rm-4264-PR (suppl)
Contract AF49 (638)-700
Unclassified report

See also AD-607 754.

Descriptors: (*Transportation, USSR), (*Communication systems, USSR), (*Economics, USSR), Air transportation, Railroads, Cargo vehicles, Shipping (Marine), Water traffic, Costs, Industrial production, Weight, Statistical data

The Supplement to Soviet Transport and Communications: Output Indexes, 1928-1962 (RM-4264-PR, November 1964) extends the Soviet output indexes to 1963 and amends some of the results in the original study. The extension and amendments are made possible by the appearance of new data in Tsentral'noe statisticheskoe upravlenie, Narodnoe khoziaistvo SSSR v 1963 godu, Moscow, 1965. (Author)

AD-624 285 **See Fld. 15/5**

AD-624 672 **See Fld. 12/2**

AD-624 674 **See Fld. 12/2**

AD-624 678 **See Fld. 17/2**

5/4. HISTORY, LAW AND POLITICAL SCIENCE

AD-624 460 Fld. 5/4
CFSTI Prices: HC $1.00 MF $0.50
RAND CORP SANTA MONICA CALIF
A MODEST PROPOSAL; OR TECHNICAL ASSISTANCE IN REVERSE,
by George Rosen. Dec 65, 8p. Rept. no. p-3273
Unclassified report

Descriptors: (*Foreign aid, United States Government), Government (Foreign), Political science, Economics, Industries, Education, Training, Leadership, Decision making, Foreign policy

The author proposes that the United States recruit foreign advisers from the developing countries to which we are giving aid or are otherwise related in a regional grouping, as in the OAS. This might be done on a government-to-government basis, or by international agencies, or by private agencies such as the Foundations. These advisers should work with the appropriate United States agencies, either within the Office of Economic Opportunity, or in other departments of our national and state governments engaged in the anti-poverty program, or even on a local level. The foreign advisers, like American advisers overseas, should not have operating responsibilities, but they should participate in the work and in the decisionmaking in the offices to which they are assigned. They would hopefully establish close relationships with officials in those offices, and their advice, ideas, and comments on programs being considered or under way would be welcomed and listened to, if not necessarily followed.

AD-624 648 Fld. 5/4
CFSTI Prices: HC $5.00 MF $1.00
PITTSBURGH UNIV PA
THE OMBUDSMAN CONCEPT AS REFLECTED IN THE INSPECTORS GENERAL, UNITED STATES ARMY AND AIR FORCE.
Master's thesis,
by Ethel E. Apter. 1965, 176p. Contract AF33 (608)-1268
Unclassified report

Descriptors: (*Military law, Officer personnel), (*Armed forces (Foreign), Military law), History, Military personnel, Military organizations, Civilian personnel, Army, Air Force, Sweden, Norway, United States

An analysis is presented of how two differently authorized agencies perform the same function, the protection of the citizen's rights. The Inspector General, internal to the organization and responsive to the executive, conducts his complaints function unemcumbered by the normal chain of command. He is considered to be a management advisory agent for the executive of the military organization to ensure compliance with its rules and regulations. To the complainant he is the channel for redress of grievances. The 'Ombudsmannen for Forsvaret', like the IG, is not a prosecutor nor is it necessary that he be a lawyer. In Norway, he is similar to the IG in that he acts in an advisory and consultative role, but to the legislative branch of the government not to the executive as does the IG. He is not nearly so powerful as the Swedish Ombudsman, but there exist within the Norwegian bureaucracy other systems for redress of military grievances which do not exist in Sweden. Cultures with widely varying backgrounds have introduced modified versions of the basic ombudsman concept to their bureaucratic structures. Finland, Denmark, and New Zealand already have done so, and other countries are considering the move, including the United States, England, Australia, Ireland, Egypt, Canada, and others. (Author)

AD-624 650 Fld. 5/4, 12/2
CFSTI Prices: HC $3.00 MF $0.75
PITTSBURGH UNIV PA
A MATHEMATICAL DECISION MAKING APPROACH TO THE CONTROL OF INTERNATIONAL CONFLICT.

Master's thesis,
by David Chandler Botto. 1965, 85p. Contract AF33 (608)-1268

Unclassified report

Descriptors: (*Decision making, Political science), (*Political science, Mathematical models), (*Foreign policy, Operations research), Linear programming, Public relations, Military psychology, Military strategy, Economics, Control, State-of-the-art reviews

International conflict is presented as a complicated system-process function with decision-making the central theme. Operationally considered, it is not a unidimensional problem strictly relegated to a norm of national behavior, power, means-ends, cause-effect, communication, or any one of the other analytical schemes so far proposed, but an intricate combination of these plus many more. The paper attempts to enumerate concisely the basic problems associated with the structure, components, and process of conflict. (Author)

AD-624 656 Fld. 5/4
CFSTI Prices: HC $3.00 MF $0.75
OHIO STATE UNIV COLUMBUS
FRANKLIN D. ROOSEVELT AND THE DEVELOPMENT OF AN AMERICAN OCCUPATION POLICY IN EUROPE.
Master's thesis,
by Dan C. Allen. 1965, 72p. Contract AF33 (608)-1262

Unclassified report

Descriptors: (*Military government, United States), Armed Forces (United States), History, Warfare, United States Government, Leadership, Military training, Europe

The influence of President Franklin D. Roosevelt on the development of the American occupation policy, 1941 to 1945, is traced. The study shows that despite the basic controversy between the civilian and military authorities, a remarkable amount of coordination and consideration was shown on the part of all concerned when meeting the politico-military problems of the war.

AD-624 666 Fld. 5/4
CFSTI Prices: HC $4.00 MF $0.75
SYRACUSE UNIV N Y
UNITED NATIONS DISARMAMENT NEGOTIATIONS, 1953-1957.
Master's thesis,
by Robert Mathias Repp,III.. 21 Sep 65, 124p. Contract AF33 (608)-1280

Unclassified report

Descriptors: (*United Nations, Disarmament), (*Disarmament, United Nations), (*Arms control, Treaties), Nuclear weapons, Foreign policy, Political science, Decision making, United States, USSR, Cold war

Disarmament negotiations over the last twenty years have led to but one positive result, the Test Ban Treaty of 1963. In 1946, however, the United States had offered a plan for comprehensive disarmament whereby the United Nations would become the sole owner of atomic energy, o use it for peaceful means. The Soviet Union also offered a general disarmament program, but because of ideological and strategic differences the two proposals could not be reconciled. A comparison of these early positions with those of today show that in the intervening years there have been two marked changes in approach by both the Soviet and the Western blocs. First, the increasing size and number of atomic weapons, the development of thermonuclear bombs, and increased threat of war caused thereby called for the revision of policy which took place on both sides of the Iron Curtain. A second change which took place during the period was the gradual elimination of the United Nations Organization as a sponsoring body. Since 1957 East and West have negotiated as opposing blocs wholly outside the United Nations.

AD-624 282 **See Fld. 5/1**

AD-624 678 **See Fld. 17/2**

5/5. HUMAN FACTORS ENGINEERING

AD-624 494 **See Fld. 5/8**

5/6. HUMANITIES

AD-624 282 **See Fld. 5/1**

5/7. LINGUISTICS

AD-624 305 Fld. 5/7, 5/2
CFSTI Prices: HC $4.00 MF $0.75
THOMAS J WATSON RESEARCH CENTER YORKTOWN HEIGHTS N Y
STUDIES IN AUTOMATIC LANGUAGE PROCESSING.
Final rept. Mar 64-Jun 65,
by David Lieberman. Jul 65, 110p. Contract AF19 (628)-4015 Proj. AF-4641 Task 464102 AFCRL 65-68

Unclassified report

Descriptors: Linguistics, Data processing systems), (*Data processing systems, Linguistics), Automatic, Grammars, Input-output devices, Syntax

The objective of the work is the development of a computerized linguistic basis for application to practical and theoretical problems in automatic language processing. The three main parts of work are: (1) a formalism for expressing grammatical information, (2) a sentence analysis procedure based on the formalism, and (3) a grammar of English expressed in terms of the formalism, but motivated by transformational theory. A detailed description of the processing of a sample sentence is given. Some new schemes, possessing certain desirable properties, for organizing records with binary valued attributes were defined. It was shown that it is possible to construct these filing schemes using finite geometries. The search time for query involving any attributes for these filing schemes based on finite geometries is very small in comparison with existing filing schemes. Moreover, the search time does not depend on the number of records. The problem of updating is also quite simple. (Author)

AD-624 555 Fld. 5/7, 9/2
CFSTI Prices: HC $4.00 MF $0.75
PURDUE UNIV LAFAYETTE IND SCHOOL OF ELECTRICAL ENGINEERING
SPEECH ANALYSIS,
Final rept. Jan 62-Dec 64,
by George W. Hughes, and John F. Hemdal. 1 Jul 65, 104p. Rept. no. tr-EE-65-9
Contract AF19 (628)-305 Proj. AF-5628 Task 562802
AFCRL 65-68

Unclassified report

Descriptors: (*Speech recognition, Data processing systems), (*Phonetics, Speech recognition), Digital computers, Speech, Hearing, Auditory perception, Programming (Computers), Linguistics, Computer logic

The limitations of speech recognition procedures which depend solely on acoustic data are discussed. One such 'primary recognition' scheme, based on phoneme classification by tracking the acoustic correlates of a set of distinctive features, is presented. Programmed on a digital computer, these logical operations on digitalized spectra of 17-msec samples of speech were tested on some 300 nonsense utterances from two talkers. A priori information about individual talker characteristics is incorporated into the logic (single-speaker approach). Comparison of machine performance was made with both the intent of the speaker and with the judgments of listeners. Listeners were presented with the same acoustic stimuli that were machine processed. Some perceptual tests were run on short vowel segments excised from nonsense syllables. Detailed quantitative results are presented only for vowels. They show that man and machine agree about 90% of the time on vowel judgments under these conditions of minimal contextual information. Clear feasure boundaries are shown on the F1-F2 plane for the (stressed) vowel utterances. Although these boundaries are not generally valid for more than one voice, simple translations of them may suffice to obtain usable vowel separation for many talkers. (Author)

AD-624 245 **See Fld. 5/10**

AD-624 256 **See Fld. 5/10**

5/8. MAN-MACHINE RELATIONS

AD-624 494 Fld. 5/8, 17/9, 5/5
CFSTI Prices: HC $1.00 MF $0.50
NAVAL RESEARCH LAB WASHINGTON D C
HUMAN VS FILTER AS DATA EXTRAPOLATOR IN A TWO-COORDINATE, SAMPLED-DATA TRACKING SYSTEM.
Interim rept.,
by C. L. Tipton. 14 Oct 65, 12p. Rept. no. NRL-6323

Unclassified report

Descriptors: (*Man-machine systems, Moving target indicators), (*Moving target indicators, Man-machine systems), (*Data processing systems, Tracking), Optical target designators, Operators (Personnel), Human engineering, Radar tracking, Data, Sampling, Low-pass filters

The performance of human operators was compared with that of a singly augmented filter in the continuous determination of the present position of a constant rate target moving in two coordinates. Target position was indicated intermittently in low, medium, or high noise levels and at low, medium, or high data rates. In addition, the target was subjected to a 10, 20, or 60 degrees course change in each trial. The filter evidenced less average tracking error in 23 of the 27 combinations of conditions of data rate, noise level, and course change. In twelve of these instances the filter was significantly superior at $p = .02$ level. Also, the results indicated increased error in human and filter performance as a function of increasing noise levels and decreasing data rates. Relative to the further enhancement of data extrapolation, several avenues of investigation recommend themselves. An immediate possibility is the employment of filter networks as an aid to the human operator. A second avenue of investigation is the study of more sophisticated filter designs. This experiment employed a filter of fixed time constant and fixed augmentation. An optimum filter would be of an 'adaptive' type, automatically adjusting its time constant and augmentation as a function of noise and data rate. (Author)

AD-624 830 Fld. 5/8, 5/10
CFSTI Prices: HC $2.00 MF $0.50
NORTH AMERICAN AVIATION INC COLUMBUS OHIO
TIME, UNCERTAINTY, AND INCENTIVE VARIABLES IN COMPOSITE TASK PERFORMANCE.
Final rept., 30 Jun 64-30 Sep 65,
by John B. Feallock, Harry P. Bahrick, and George N. Ornstein. 30 Sep 65, 42p. Rept. no. na65H-913
Contract Nonr-4480 (00) Proj. NR-196-040

Unclassified report

Descriptors: (*Man-machine systems, Performance (Human)), Signals, Performance tests, Motivation, Stimulation, Perception (Psychology), Motor reactions, Stress (Psychology), Analysis of variance

Within complex man-machine systems, individual operators are commonly required to perform two or more functions concurrently. This report describes two empirical evaluations of the effects of variables common to complex systems upon the performance of a composite task comprised of two serial tasks. The first study investigated the effects of signal rate, signal duration and signal onset predictability upon performance accuracy and latency. Accuracy scores were reliably decreased by increased signal rate and increased onset predictability, although signal duration produced no reliable differences. Latency scores were insensitive to all three independent variables. In the second study, two variables were evaluated for their effects upon the accuracy of performance on the individual channels. One variable was the redundancy of signals on the second channel; the other was the ratio of incentive pay for the first and second channels. Performance improved reliably with signal redundancy for only the channel whose signal redundancy was increased. Different ratios of incentive pay did not produce reliable differences in performance for either channel, although certain trends were noted. (Author)

AD-624 467 See Fld. 22/3

5/9. PERSONNEL SELECTION, TRAINING AND EVALUATION

AD-624 428 Fld. 5/9
CFSTI Prices: HC $2.00 MF $0.50
NAVAL PERSONNEL RESEARCH ACTIVITY SAN DIEGO CALIF
PROJECT COMPASS: A COMPUTER ASSISTED CLASSIFICATION SYSTEM FOR NAVY ENLISTED MEN.
Research rept.,
by Leonard Swanson, and A. N. Dow. Oct 65, 41p. Rept. no. srr-66-6
Proj. PF016050201S2

Unclassified report

Descriptors: (*Naval personnel, Classification), Digital computers, Selection, Programming (Computers), Personnel management, Naval training, Flow charting, Mathematical models, Effectiveness, Tests

The report describes Project COMPASS, a computerassisted classification system for assigning Navy recruits to schools and to general detail job codes. While the procedure has been developed for use at NTC/SDIEGO, it is adaptable for use elsewhere. Assignments to schools are made first, followed by assignments to general detail job codes. School quotas are filled by an overall best combination of men--the computer being programmed to maximize the sum of selection test scores for the individual schools. All restrictions concerning test scores, recruiting program, physical and volunteer requirements are incorporated into the COMPASS system. The classification interviewer's recommendations are differentially weighted to reflect recruit motivation and the needs of the service. Computer based assignment to on-the-job training codes are also obtained. Comparisons between hand and COMPASS assignments indicate that improvements using COMPASS assignments over the conventional hand assignment method are achieved in both raising the average of school selector test scores and in filling quotas where there is a short supply of school eligible recruits. The implementation of Project COMPASS will facilitate use of other advanced methods of personnel selection which are not feasible without the use of a computer. The immediate implementation of Project COMPASS at NTC/SDIEGO and steps leading to its extension to NTC/GLAKES are recommended. (Author)

AD-624 449 Fld. 5/9, 5/2
CFSTI Prices: HC $1.00 MF $0.50
INTERLABORATORY COMMITTEE ON EDITING AND PUBLISHING CORONA CALIF
HIRING THE TECHNICAL EDITOR. THE PROSPECTIVE EMPLOYER'S VIEWPOINT,
by W. J. Kirkpatrick. Mar 65, 19p. Rept. no. ilcep-Monograph-8

Unclassified report

Prepared in Cooperation with Naval Missile Center, Point Mugu, Calif.

Descriptors: (*Professional personnel, Selection), (*Reports, Preparation)

The technical editor should be expert in the theory and use of the English language, reasonably familiar with numerous scientific disciplines and technological processes, knowledgeable in graphic arts, and capable of dealing successfully with scientists, engineers, and management. To find such a person, a prospective employer should seek a college graduate in English or journalism with broad training in the sciences and experience in editing written material similar to that expected on the job. On the basis of information gathered through resumes, correspondence, and interviews, the prospective employer should appraise each candidate's aptitude for technical editing, the potential effects of his personal appearance, attitudes, and emotional stability on others, and his work habits and quality of judgment. After comparing all the findings, the employer can choose the most likely candidate from those available. (Author)

AD-624 531 Fld. 5/9
CFSTI Prices: HC $1.00 MF $0.50
NAVAL TRAINING DEVICE CENTER PORT WASHINGTON N Y
DETECTION IN A HOMOGENOUS VISUAL FIELD UNDER A CONDITION OF INFINITE DEPTH OF FOCUS,
by John F. Catalano, and Milton S. Katz. 19 Aug 65, 23p. Rept. no. navtradevcen-IH-33
Proj. 7885 Task 788508

Unclassified report

Descriptors: (*Pilots, Visual acuity), (*Visual acuity, Training devices), (*Training devices, Visual acuity), Focusing, Visual perception, Detection, Targets, Eye

It has been proposed by Whiteside that in a homogeneous visual environment involuntary accommodation results in a myopic condition which impairs target detection. A means of overcoming this myopia by approximating a condition of infinite depth of focus with the use of an artificial pupil was studied. No improvement of target detection resulted from this procedure. (Author)

AD-624 573 Fld. 5/9
CFSTI Prices: HC $4.00 MF $1.00
DEPUTY CHIEF OF STAFF FOR PERSONNEL (ARMY) WASHINGTON D C
SERGEANTS MAJOR PERSONNEL CONFERENCE.
Final transcript,
by Arthur L. Goodall. 25 Oct 65, 148p.

Unclassified report

Descriptors: (*Army personnel, Symposia), (*Personnel management, Army), Officer personnel, Selection, Physical fitness, Logistics, Military rations, Clothing, Military facilities, Military law, Military organizations

Contents: Physical profile system as related to classification; Health of the soldier; Enlisted retirement pay; Study guide for MOS testing; Revision of DA Form 2166 (Commander's Evaluation Report); Evaluation of senior noncommissioned officers; Enlisted evaluation system; Establishment of a combat badge; Dislocation allowance; Establishment of an official publication for SMaj; Senior NCO BEQ; Award of secondary MOSs; Distinctive uniform for senior enlisted personnel; Requisitioning procedures; Retention of special qualification identifiers; Noncommissioned officer logistics program; Re-enlistment bonus; Standardized enlisted promotion criteria; Promotion of NCOs in BCT regiments; Retirement; Medical records for dependents; Continue retired pay of officers and enlisted men to widow; Enlisted grade structure and insignia; Short sleeve fatigue shirts; Name tapes; Improved quality control of fatigue clothing and field jacket; Distinctive unit insignia for non-color bearing units; Branch for Sergeant Major.

AD-624 576 Fld. 5/9, 14/2
CFSTI Prices: HC $2.00 MF $0.50
NAVAL PERSONNEL RESEARCH ACTIVITY SAN DIEGO CALIF
ABSTRACTS OF TECHNICAL REPORTS, JULY 1964JUNE 1965.
Research rept.
Sep 65, 39p. Rept. no. srr-65-8

Unclassified report

Descriptors: (*Naval personnel, Naval research laboratories), (*Naval research laboratories, Reports), Abstracts

This publication contains a list of all technical reports (and a short abstract of each report) issued by the U. S. Naval Personnel Research Activity, San Diego, California 92152, during fiscal year 1965. (Author)

AD-624 608 Fld. 5/9
CFSTI Prices: HC $1.00 MF $0.50
NAVAL PERSONNEL RESEARCH ACTIVITY SAN DIEGO CALIF
AN INVESTIGATION OF THE UTILITY OF A CONVERSION CHART AS A JOB AID FOR ELECTRONICS TECHNICIANS.
Technical bull.,
by Eugene A. Hooprich, and John A. Steinemann. Nov 65, 20p. Rept. no. stb-66-13
Proj. PF-17030304

Unclassified report

Descriptors: (*Naval training, Electronic technicians), (*Electronic technicians, Naval training), (*Training devices, Electronic technicians), Naval personnel, Effectiveness, Performance tests

As a part of continuing research to increase the effectiveness of Navy training, an experiment was conducted to determine if a wallet-sized conversion chart would be a practical and convenient job aid for electronics technicians in training and on the job. Three groups of Navy personnel were used as subjects: 42 experienced technicians, 30 experimental ET School trainees, and 30 personnel with little or no electronics training. The criterion used to evaluate the effectiveness of the job aid was a measurement conversion test composed of ten completion items. One half of each experimental group was allowed to use the conversion chart while taking the test, and the other half was not permitted to use any aid. The major finding was that those trainees using the conversion chart did significantly better on the test than those trainees not using it, and they also did as well as experienced technicians using or not using the chart. Questionnaire responses indicated that the subjects considered the conversion chart to be better than other similar aids and to be of value in the job or training situation after only brief instruction and practice. Distribution of the chart to Navy technical personnel is recommended, and proposed formats for the front and back of the card are presented. (Author)

AD-624 609 Fld. 5/9
CFSTI Prices: HC $1.00 MF $0.50
NAVAL PERSONNEL RESEARCH ACTIVITY SAN DIEGO CALIF
THE RELATIONSHIP OF OCS GRADES TO OFFICER FITNESS REPORT MARKS.
Research rept.,
by Bob D. Rhea. Nov 65, 18p. Rept. no. SRR-66-8
Proj. PF016050492

Unclassified report

Descriptors: (*Officer personnel, Effectiveness), (*Naval training, Officer personnel), Performance (Human), Aptitude tests, Personnel management, Performance tests, Statistical analysis

The purpose of this study was to determine if any of several grades earned at OCS could be used to predict officer effectiveness as measured by Officer Fitness Report Summaries. The subjects were 2,183 graduates from OCS Classes 34, 35, 36, 39, 40, and 41 (1957-58). The criterion of officer effectiveness was the average fitness report rating received by the officer during his first 18 months of naval service. Essentially, the conclusions are: (1) there is a low but statistically significant relationship (the average validity was .22) between each of the OCS variables considered in this study and the fitness criterion, (2) Fleet based fitness report marks are significantly less predictable than Shore based fitness reports, (3) the validities of the different OCS academic grades vary only negligible, (4) Final School Grade and Military Aptitude were the best predictors of those studied, having validities in the .16 to .37 range. (Author)

AD-624 645 Fld. 5/9
CFSTI Prices: HC $3.00 MF $0.75
PITTSBURGH UNIV PA
AN ANALYSIS OF THE SELECTION OF CANDIDATES FOR SALES ENGINEERING POSITIONS.
Master's thesis,
by Edmond J. Uzdavines. 1965, 99p. Contract AF33 (608)-1268

Unclassified report

Descriptors: (*Personnel management, Engineering personnel), (*Engineering personnel, Selection), Management engineering, Aptitude tests, Effectiveness, Statistical data, Commerce, Factor analysis, Programming (Computers), Linear programming

AD-624 653 Fld. 5/9
CFSTI Prices: HC $3.00 MF $0.75
PITTSBURGH UNIV PA
PROPOSALS FOR AN ALL REGULAR OFFICER FORCE AS AN AID TO PROCUREMENT AND RETENTION OF QUALIFIED PERSONNEL IN THE UNITED STATES AIR FORCE CAREER OFFICER CORPS.
Master's thesis,
by Suzanne Crum. Jul 65, 74p. Contract AF33 (608)-1268

Unclassified report

Descriptors: (*Officer personnel, Air Force), Air force personnel, Recruiting, Personnel management, Air Force training, Military facilities, Motivation

The study is intended to identify the dual structure of the present United States Air Force officer corps as a negative factor to career motivation within the body of junior officers serving their initial obligated tour of active duty. The thesis set forth argues that an all regular force, that procurement sources limited to programs designed to prepare selected portions of the nation's young men and women for the career force, and that a realistic program of inculcation and orientation toward a career commitment will alleviate the retention problem which plagues the Air Force.

AD-624 692 Fld. 5/9, 5/10
CFSTI Prices: HC $1.00 MF $0.50
DIRECTORATE OF CIVILIAN PERSONNEL (AF) WASHINGTON D C PERSONNEL RESEARCH BRANCH
DEVELOPMENT OF A NON-VERBAL LEARNING ABILITY TEST FOR NON-U.S. CITIZEN PERSONNEL OVERSEAS.
Research rept.,
by James D. Teller. 15 Dec 65, 9p. Rept. no. rr-65-4

Unclassified report

Descriptors: (*Civilian personnel, Military facilities), (*Psychometrics, Civilian personnel), Aptitude tests, Performance tests, Test construction (Psychology), Learning, Factor analysis, Air Force

Conclusions: If the objective is to select applicants who can learn well and fast, that is, to predict the supervisors' ratings of Development Potential, all of the tests except those titled Length Perception and Assembly are statistically significant at the 1% level, but the relationships are so low as to be useless for practical predictive purposes. Three of the tests which are most highly correlated together with two spatial tests and three of the ratings load on a factor which is best interpreted as a spatial factor. These same three tests together with two performance tests load on a factor which is best interpreted as a performance factor. It should be noted that none of the ratings load on this factor. Since none of the tests can explain as much as 9% of the variance in the supervisors' ratings of Development Potential, a larger battery of tests tapping other types of abilities in a non-verbal manner will be required.

AD-624 747 Fld. 5/9, 6/10
CFSTI Prices: HC $3.00 MF $0.50
SAN ANTONIO AIR MATERIEL AREA KELLY AFB TEX DIRECTORATE OF MAINTENANCE
THE USE OF STATISTICAL CONTROL CHART TECHNIQUES IN A SICK LEAVE CONTROL PROGRAM.
Final rept.,
by Roy M. Wimpee, and James H. Smith. Oct 65, 52p.

Unclassified report

Descriptors: (*Personnel management, Industrial medicine), (*Industrial medicine, Personnel management), Statistical analysis, Quality control, Medicine, Management engineering, Government employees, Civilian personnel, Public health, Costs

Sick leave records can be analyzed by control charting techniques such as are commonly used in statistical quality control. These techniques do three things: (1) compute the amount of variation in the sick leave rate that can be expected from normal chance variations, (2) compare this value with the actual variations experienced, and (3) identify variations that are too large to explain by chance. Organizations with large variations have some definite cause -- some specific health problem -- other than normal chance variation affecting their sick leave rate. After identifying the organizational components with health problems in this way, medical personnel can be directed to those specific areas to find and eliminate the health problems. This procedure directs professional medical assistance to those areas where it is needed, without the expense of using medical talent in all areas. One such method of statistical analysis of sick leave records, developed for and used by a large industrial organization, is described. (Author)

AD-624 779 Fld. 5/9
CFSTI Prices: HC $1.00 MF $0.50
NAVAL SUBMARINE MEDICAL CENTER GROTON CONN MEDICAL RESEARCH LAB
CURRENT PROBLEMS IN ENLISTED SUBMARINE PHYSICAL EXAMINATIONS,
by Julio C. Rivera. 12 May 65, 9p. Proj. MR005.14-2100 NAVMED MR005-14-2100-1-14

Unclassified report

Descriptors: (*Submarine personnel, Selection), (*Medical examination, Submarine personnel), Physical fitness, Recruiting, Naval personnel

The purpose of the report is to determine the current attrition rate for physical reasons in the Basic Enlisted Submarine School. In spite of the requirement that all candidates for the Basic Enlisted Submarine School be examined prior to reporting to the U. S. Naval Submarine Base-New London, re-examination at the Base revealed an increase in the percentage of rejections for physical reasons among these candidates. The increase was from seven per cent in 1960 to eleven per cent in 1964. The findings of the study should alert the responsible Naval authorities as to the time and money being wasted due to inadequate preliminary submarine physical examinations conducted prior to reporting to the Submarine Base. (Author)

AD-624 780 Fld. 5/9, 6/5
CFSTI Prices: HC $1.00 MF $0.50
NAVAL SUBMARINE MEDICAL CENTER GROTON CONN MEDICAL RESEARCH LAB
DEEP FREEZE '61 DENTAL OFFICER'S REPORT,
by Thomas N. Allenworth. 26 Feb 65, 12p. Proj. MR005.12-5220 NAVMED MR005-12-5220-2-16

Unclassified report

Descriptors: (*Antarctic regions, Job analysis), (*Dental personnel, Officer personnel), Selection, Physical fitness

The purpose of the report is to describe the duties and situation facing the Dental Officer assigned to the Support Force Activities of Operation Deep Freeze, as found by the Dental Officer assigned to Deep Freeze Six. During staging, during deployment, and while on-station in Antarctica, the author describes the facilities available, the services expected, the research accomplished, his collateral duties, and gives his recommendations as applied to the Dental Officer's situation. (Author)

AD-624 781 Fld. 5/9, 6/14
CFSTI Prices: HC $1.00 MF $0.50
NAVAL SUBMARINE MEDICAL CENTER GROTON CONN
VISUAL REQUIREMENT FAILURE BY CANDIDATES REPORTING FOR BASIC SUBMARINE TRAINING DURING 1964.
Memo rept.,
by Paul F. Kent. 22 Mar 65, 10p. Rept. no. 65-3

Proj. MR005.142001 NAVMED MR005-14-2001-3-05

Unclassified report

Descriptors: (*Submarine personnel, Physical fitness), (*Vision, Submarine personnel), Military training, Medical examination, Naval personnel

The purpose of the report is to investigate the reasons why a significant number of the 1964 enlisted candidates for submarine duty were disqualified for ocular reasons at the time of their final physical examination administered upon reporting for submarine training. Visual drops for 1964 totalled 279. This number does not include 41 candidates who met the other visual criteria but failed the color vision test. A large percentage of these disqualifying visual deficiencies should have been discovered at the preliminary examination performed at the previous duty station. (Author)

AD-624 786 Fld. 5/9, 12/1
CFSTI Prices: HC $3.00 MF $0.75
INSTITUTE OF NAVAL STUDIES CAMBRIDGE MASS
PREDICTION OF REENLISTMENT USING REGRESSION ESTIMATION OF EVENT PROBABILITIES (REEP).
Final rept.,
by Joseph G. Bryan, and Arnold Singer. 1 Oct 65, 99p. Rept. no. ins-Research-Contribution-13 ,INS-U-65-11-195
Contract Nonr-3732 (00)

Unclassified report

Prepared in cooperation with Travelers Research Center, Inc., Hartford, Conn.

Descriptors: (*Recruiting, Mathematical prediction), (*Naval personnel, Recruiting), Statistical analysis, Probability, Mathematical models

The report describes the statistical methodology of a 'package' of computer programs referred to as REEP (Regression Estimation of Event Probabilities). REEP uses regression analysis techniques to arrive at equations which yield probabilities of occurrence for each of a set of possible events. An application of REEP to predicting reenlistment for enlisted Navy men is given. (Author)

AD-624 450 See Fld. 5/10

AD-624 461 See Fld. 16/4

AD-624 616 See Fld. 1/2

AD-624 783 See Fld. 6/19

AD-624 793 See Fld. 5/10

5/10. PSYCHOLOGY (INDIVIDUAL AND GROUP BEHAVIOR)

AD-624 245 Fld. 5/10, 5/7
WALTER REED ARMY INST OF RESEARCH WASHINGTON D C
INFERRING A GRAMMAR FROM RESPONSES: DISCUSSION OF GOUGH AND SEGAL'S COMMENT,
by Martin D. S. Braine. 1965, 2p.
Unclassified report

Availability: Published in Psychon. Sci V3 P241-2 1965. Copies to DDC users only.

Descriptors: (*Grammars, Learning), (*Learning, Grammars), Memory, Performance tests

In the light of Gough and Segal's comments, a more detailed discussion is presented of various lines of argument which lead to the conclusion that the regularities learned in a previous experiment are not adequately represented by rules of the kinds permitted in finite state grammars. Some evidence against a proposed transform grammar is also reported. (Author)

AD-624 246 Fld. 5/10
WALTER REED ARMY INST OF RESEARCH WASHINGTON D C
INTER-PHASE TIME INTERVALS IN SEWARD'S LATENT LEARNING EXPERIMENT,
by Kirk M. Smith, Gerry Brodsky, and Thomas A. Mabel. 1965, 2p.
Unclassified report

Prepared in cooperation with Oregon Univ., Eugene and Indiana Univ., Bloomington.

Availability: Published in Psychon. Sci. V3 P197-8 1965. Copies to DDC users only.

Descriptors: (*Learning, Performance tests), Rats, Time, Analysis of variance

Three groups of 22 rats were exposed to the procedures of Seward's latent learning experiment (1949), but differed in the amount of time elapsing between the three phases of the experiment, free exploration, pre-feeding and testing. Two groups, one with a 24 hr. interval between exploration and pre-feeding and the other with a 24 hr. interval between pre-feeding and testing, failed to exhibit latent learning. The former condition is similar to that reported by Gilchrist (1952). A third group run without delays replicated Seward's original findings. (Author)

AD-624 256 Fld. 5/10, 17/2, 5/7
OHIO STATE UNIV RESEARCH FOUNDATION COLUMBUS
PREDICTING THE INTELLIGIBILITY OF WORDS III.
Revised ed.,
by John W. Black. Apr 65, 4p. Rept. no. osurf-104
Contract Nonr-495 (18) Proj. NR-145-993 ,RF-1002
Unclassified report

Availability: Published in Proc. 5th Int. Congr. Phon. Sci., P215-7 1964. Copies to DDC users only.

Descriptors: (*Speech, Intelligibility), (*Intelligibility, Speech), Voice communication systems, Phonetics, Noise, Hearing, Signal-to-noise ratio, Auditory perception, Probability

The data suggest that the relative intelligibility of a phoneme is a stable phenomenon; further that this characteristic can be demonstrated with few listeners, few listeners, few speakers, and a limited number of words. Currently, this outcome is based on five speakers, five listeners, and 300 words, a combination that yielded 10,000 responses to simple words. Possibly more results are to be expected. (Author)

AD-624 322 Fld. 5/10
MIAMI UNIV OXFORD OHIO
GROUP PERFORMANCE AS A FUNCTION OF SIZE, STRUCTURE, AND TASK DIFFICULTY,
by Julian O. Morrissette, S. A. Switzer, and Clarke W. Crannell. 7 Feb 64, 9p. Contract AF33 (657)-10456 Proj. AF-7184 Task 718403 AMRL TR-65-140
Unclassified report

Availability: Published in Journal of Personality and Social Psychology V2 N3 P451-55 Sep 1965. Copies to DDC users only.

Descriptors: (*Group dynamics, Performance (Human)), Psychometrics, Job analysis, Analysis of variance, Problem solving, Information theory, Social psychology

Ten groups solved 15 problems in each of 8 conditions: 4- and 5-man groups (4-m, 5-m) in 'Wheel' (W) and 'Circle' (C) structures under 2 levels of task difficulty, H=1.6 and H=2.4 (H is information entropy). Solution-time data showed: (a) no difference between 4- and 5-m in W on H=1.6, H=2.4, and in C on H=2.4, while in C on H=1.6 4-m was faster than 5-m; (b) W was faster than C in 4-m on H=2.4 and 5-m on H=1.6 and H=2.4, while 4-m on H=1.6 no differences between W and C were obtained; (c) H=1.6 was faster than H=2.4 in 4-m in both W and C and in 5-m in W, while in 5-m C no differences between H=1.6 and H=2.4 were obtained. Error data showed W making fewer errors than C in both 4- and 5-m on H=1.6. (Author)

AD-624 336 Fld. 5/10, 6/19
CLINICAL INVESTIGATION CENTER OAKLAND CALIF
DEPERSONALIZATION IN SPACEMEN AND SUBMARINERS.
Interim technical rept.,
by Mardi J. Horowitz. Nov 65, 7p. Rept. no. cic-TR-10
Contract Nonr-222 (51) Proj. NR-105-156,MR005.12-2101.5
Unclassified report

Availability: Published in Military Medicine, V129 N11 P1058-60 Nov 1964. Copies to DDC users only.

Descriptors: (*Confined environments, Stress (Psychology)), (*Sensory deprivation, Abnormal psychology), Personality, Adjustment (Psychology), Astronauts, Submarine personnel, Military psychology

The report describes the syndrome of depersonalization and documents that it may be a threat to the psychologic well-being and effectiveness of persons in strange, isolated, and stressful environments. Several techniques which focus on the potential problems of depersonalization are described. (Author)

AD-624 337 Fld. 5/10
CLINICAL INVESTIGATION CENTER OAKLAND CALIF
BODY-BUFFER ZONE. EXPLORATION OF PERSONAL SPACE.
Interim technical rept.,
by Mardi J. Horowitz, Donald F. Duff, and Lois O.Stratton. Nov 65, 9p. Rept. no. cic-TR-11
Contract Nonr-222 (51) Proj. NR-105-156,MR005.12-2101.5
Unclassified report

Availability: Published in the Archives of General Psychiatry, V11 P651-6 Dec 1964. Copies to DDC users only.

Descriptors: (*Body, Perception (Psychology)), Personality, Behavior, Neuroses, Performance tests

Clinical observation of human spatial behavior has led to experimental studies of personal space. The subjects tested approached nonthreatening inanimate objects closer than persons. A group notorious for interpersonal withdrawal and avoidance, i.e., psychiatric patients with a diagnosis of schizophrenia, tended to place greater distances around themselves than did nonschizophrenic groups. From these observations, a hypothesis emerged that each human being has, as part of his body-image constellation, an internal projection of the space immediately around him. We tentatively call this the body-buffer zone. The size, shape, and penetrability of this buffer zone probably depend on immediate interpersonal events, current ego and drive states, and the individual's psychologic and cultural history. (Author)

AD-624 338 Fld. 5/10, 6/5
CLINICAL INVESTIGATION CENTER OAKLAND CALIF
HUMAN SPATIAL BEHAVIOR.
Final technical rept.,
by Mardi J. Horowitz. Nov 65, 12p. Rept. no. cic-TR-12
Contract Nonr-222 (51) Proj. NR-105-156,MR005.12-2101.5
Unclassified report

Availability: Published in American Journal of Psychotherapy, V19 N1 P20-8 Jan 1965. Copies to DDC users only.

Descriptors: (*Body, Perception (Psychology)), Space perception, Behavior, Reaction (Psychology), Psychoses, Psychiatry, Personality

Spatial behavior, with particular reference to personal space and body-buffer zones in interpersonal transactions, is discussed. The aims are to emphasize the clinical importance of observation of patients' feelings about space, especially with respect to their proximity to others, and to indicate the possible utilization of such observations in treatment. (Author)

AD-624 450 Fld. 5/10, 5/9
CFSTI Prices: HC $2.00 MF $0.50
NAVAL SCHOOL OF AVIATION MEDICINE PENSACOLA FLA
A STUDY OF SOME DETERMINERS OF PSYCHOLOGICAL STRESS.
Research rept.,
by Robert J. Wherry Jr., and Patrick M. Curran.
29 Jul 65, 43p. Rept. no. nsam-941
Proj. MF022.03.02-5013 NAVMED MF022.03.02-5013.14-2
Unclassified report

Descriptors: (*Stress (Psychology), Performance (Human)), (*Aviation personnel, Selection), Behavior, Perception (Psychology), Training, Aviation medicine, Probability, Graphics, Tables, Analysis of variance

The study utilizes a four-choice discrimination task and various levels of electric shock to investigate possible determiners of anticipatory stress, and individual differences in performance decrements resulting from such stress. In general, disruption increases as the threatening event comes closer, as the perceived probability of its occurrence becomes greater, and as the perceived degree of unpleasantness is increased. Whether or not the anticipated unpleasant event really occurred in previous exposures influences behavior in subsequent exposures. There are several indications that anticipatory physical threat stress has a curvilinear relationship to performance, with low amounts of threat enhancing performance. There were wide individual differences in susceptibility to performance disruption by threat. (Author)

AD-624 452 Fld. 5/10
CFSTI Prices: HC $2.00 MF $0.50
NAVAL AIR DEVELOPMENT CENTER JOHNSVILLE PA AVIATION MEDICAL ACCELERATION LAB
METHODOLOGICAL PROBLEMS OF THE PSYCHOPHYSICAL METHODS OF LIMITS AND CONSTANT STIMULI.
Phase rept.,
by Robert M. Herrick. 30 Jun 65, 41p. Rept. no. nadc-ML-6505
Task R360-FR-102/2021/R01-101-01
Unclassified report

Descriptors: (*Psychometrics, Psychophysiology), (*Psychophysiology, Mathematical models), Probability, Stimulation, Thresholds (Physiology), Perception (Psychology), Statistical analysis

The method of limits (ML) and the method of constant stimuli (MCS) can be related on the basis of simple probability considerations. From the probability relationship many deductions may be made. Examples of such deductions indicate, among other things, (a) the characteristics of distributions of thresholds in the ML, (b) the influence of the number of stimulus steps, the number of 'Yes' responses required at a step, the number of threshold determinations, etc., (c) preferred methods for comparisons within the ML and between the ML and the MCS, (d) incompatibility of present-day assumptions concerning the ML and the MCS. (Author)

AD-624 528 Fld. 5/10, 6/1
CFSTI Prices: HC $2.00 MF $0.50
MOLECULAR PSYCHOBIOLOGY LAB YORK UNIV TORONTO (ONTARIO)
THE EFFECTS OF AUDITORY STIMULATION AND MOTOR ACTIVITY ON NUCLEIC ACIDS AND PROTEINS,
by John Gaito, Kenneth Koffer, and James Mottin. 15 Oct 65, 34p. Rept. no. mpl-1
Contract Nonr-4935 (00) Grant ,NRC-APA-122
Unclassified report

Descriptors: (*Psychophysiology, Nucleic acids), (*Nucleic acids, Behavior), Auditory perception, Motor reactions, Stimulation, Proteins, Desoxyribonucleic acids, Ribonucleic acids, Learning, Memory, Nerve cells, Brain, Tables, Statistical analysis, Canada

The report is mainly concerned with the possibility of using RNA/DNA, protein/DNA, and protein/RNA ratios as indirect indices of functional activity so as to locate brain loci contributing to specific behaviors. A review of the literature suggests such a possibility. Two experiments were conducted, one with aural stimulation and the other with forced motor activity. The results in the first experiment were not definitive, probably because of a defective experimental design; however, a meaningful, but statistically nonsignificant, quadratic function occurred in the protein/DNA and protein/RNA ratios in the auditory area. The results in the second experiment were more definite. Statistically significant quadratic functions resulted in the protein data and in all three ratios for the motor area. These results were interpreted as being favorable toward the use of the ratios as indirect indicators of functional activity. For best results, however, a direct indicator of activity, uptake of radioactive precursors into RNA, DNA, and proteins, could be included also. The amounts of RNA, DNA, and proteins, and the three ratios, for each brain portion in the two experiments are indicated. (Author)

AD-624 597 Fld. 5/10, 12/2
CFSTI Prices: HC $1.00 MF $0.50
SYSTEM RESEARCH LTD RICHMOND (ENGLAND)
A STUDY OF GROUP DECISION MAKING AND COMMUNICATION PATTERNS UNDER CONDITIONS OF STRESS AND OVERLOAD WHEN THE PARTICIPANTS ARE PERMITTED TO FUNCTION AS A SELFORGANISING SYSTEM.
Quarterly technical status rept. no. 2, 1 Apr-30 Jun 65.
30 Jun 65, 5p. Contract DA-91-591-EUC-3607
Unclassified report

Continuation of Contract DA-91-591-EUC-3216, See also AD-617 473.

Descriptors: (*Decision making, Stress (Psychology)), (*Game theory, Group dynamics), Performance (Human), Decision theory, Noise, Adaptive systems, Optimization, Reliability, Great Britain

Individual adaptive subsystems (an assigned to each of two participants) were provided to maintain optimum performance conditions for the participants concerned. An overall control system was provided to adjust the parameters of each of the subsystems to optimize group performance. The participants are continuously engaged in the conjoint skill of detecting and intercepting one of eight different trajectories. Experimental work is summarized.

AD-624 670 Fld. 5/10, 5/1
CFSTI Prices: HC $4.00 MF $0.75
DENVER UNIV COLO
A PERT INFLUENCED REFLECTIVE THINKING APPROACH TO PROBLEM-SOLVING DISCUSSION.
Doctoral thesis,
by Ovid Lyndal Bayless. Aug 65, 113p. Contract AF33 (608)-1226
Unclassified report

Descriptors: (*Management planning, Problem solving), (*Problem solving, Group dynamics), (*Group dynamics, Problem solving), Operations research, Decision making, Social communication, Reasoning

PERT (Program Evaluation and Review Technique) is a device for the planning and control of work force activities in business operations. It was devised as an integrated management system to measure progress toward project objectives, to evaluate current and potential project problems, and to predict the shortest time in which a project can be completed. Four of PERT's major characteristics are (1) working back from the 'end event,' (2) subdividing activities, (3) balancing available resources, and (4) identifying the 'critical path.' A pattern for problem-solving in small face-to-face groups was constructed from these four PERT characteristics and the basic steps in reflective thinking. The primary hypothesis for this investigation was that a PERT influenced problem-solving pattern is just as effective in small face-to-face discussion as the reflective thinking and brainstorming patterns. The findings of the present study tend to generally substantiate this hypothesis.

AD-624 705 Fld. 5/10, 6/1
CFSTI Prices: HC $2.00 MF $0.50
MOLECULAR PSYCHOBIOLOGY LAB YORK UNIV TORONTO (ONTARIO)
THE EFFECTS OF CHEMICAL STIMULATION AND LEARNING ON NUCLEIC ACIDS AND PROTEINS.
Research rept.,
by John Gaito, James Mottin, and Kenneth Koffer. 15 Nov 65, 33p. Rept. no. mpl-2
Contract Nonr-4935 (00) Grant ,NRC-APA-122
Unclassified report

See also AD-624 528.

Descriptors: (*Brain, Nucleic acids), (*Nucleic acids, Learning), (*Psychophysiology, Nucleic acids), (*Electrolytes (Physiology), Learning), Desoxyribonucleic acids, Ribonucleic acids, Proteins, Potassium compounds, Chlorides, Tissues (Biology), Nerve cells, Behavior, Statistical analysis, Tables, Canada

The effect of KC1 and of learning on the amounts of DNA, RNA, and protein/g tissue, and ratios of these three, in various brain tissue was investigated in two experiments. Four groups of rats were used in each study. One group received KC1 on both cerebral hemispheres; a second, KC1 on one hemisphere and physiological saline on the other; the third, saline on both hemispheres; and the fourther group had no chemicals injected. The results in the first experiment indicated increased activity in the dorsal cortex and lower brain stem and decreased activity in the cerebral hemispheres and upper brain stem. In Experiment 2 similar chemical treatments were involved and the animals were subjected to a learning task. The neurochemical results were not clear-cut; however, there was a suggestion that decreased activity was present in the posterior ventral cortex of rats who had KC1 on both hemispheres and whose behavior showed no evidence of learning the task of concern. (Author)

AD-624 717 Fld. 5/10
PARIS UNIV (FRANCE) LABORATOIRE DE PSYCHOLOGIE SOCIALE
L'APPROCHE CLINIQUE ET EXPERIMENTALE DE LA GENESE DES NORMES CONTRACTUELLES DANS DIFFERENTES CONDITIONS DE CONFLIT ET DE MENACE (CLINICAL AND EXPERIMENTAL APPROACH TO THE ORIGIN OF CONTRACTUAL NORMS UNDER DIFFERENT CONDITIONS OF CONFLICT AND THREAT),
by Claude Faucheux, and John Thibaut. 1964, 20p. Contract Nonr-855 (04)
Unclassified report

Prepared in cooperation with North Carolina Univ., Chapel Hill. Text in French, summary in English.

Availability: Published in Bulletin Du C. E. R. P. V13 N4 P225-43 1964. Copies to DDC users only.

Descriptors: (*Group dynamics, Adjustment (Psychology)), Social psychology, Power, Fear, Leadership, Behavior

In a group where there is a power inequality two threats, an external one and an internal one, can arise and endanger the survival of the group: the internal treat comes from a conflict of interest which generates among the powerless members the fear that powerful members may not be fair in sharing common income. The external threat comes from external alternatives which make the powerful members fear that powerless members may leave the group. In such a situation it can be expected that the powerful members will appeal to loyalty norms and the powerless members to equity norms, but only when both threats are high at the same time is a contractual activity possible, which ascertains the survival of the group. In order to test this theory an experiment was conducted

using dyads where a powerful member and a powerless member had to negotiate a common strategy and share points in 4 conditions differing in threat level generated by manipulating 2 levels (high and low) for each threat. Results confirming the hypotheses are discussed in connection with the concepts of cohesion, power and negotiation. (Author)

AD-624 793 Fld. 5/10, 5/9
NAVAL SUBMARINE MEDICAL CENTER GROTON CONN
EFFECTS OF THE CUBAN CRISIS UPON ATTITUDES RELATED TO WAR AND PEACE.
Memorandum rept.,
by Edmund N. Epstein. 14 Aug 65, 4p. Rept. no. memo-65-13
NAVMED MF022-03-03-9022-05
Unclassified report

Availability: Published in Psychological Reports V17 P424-6 1965. Copies to DDC users only.

Descriptors: (*Cold war, Attitudes), (*Submarine personnel, Attitudes), Cuba, Military psychology, Motivation

Shifts in attitudes related to war and peace were observed after the Cuban crisis in 128 enlisted candidates for the U. S. Naval Submarine Service. (Author)

AD-624 848 Fld. 5/10, 6/16
CFSTI Prices: HC $2.00 MF $0.50
LOUISVILLE UNIV KY PERFORMANCE RESEARCH LAB
ELECTRIC SPARK STIMULATION OF THE SKIN.
Technical rept.,
by Kent Te Vault. 10 Nov 65, 31p. Contract DA-49-193-MD-2525
Unclassified report

Master's thesis.

Descriptors: (*Skin, Stimulation), (*Sensory mechanisms, Skin), Thresholds (Physiology), Sensation (Physiology), Electric currents, Psychophysiology, Analysis of variance

On the basis of the data it was concluded that the technique devised by Bishop for exploring the skin's sensory mechanisms is not as simple and as straightforward as it at first appeared. It was, furthermore, not possible to replicate Bishop's findings with regard to simultaneous two-point stimulation. The method of single-unit analysis of the skin is not to be discarded easily, however. Only the method of capacitor-discharge spark stimulation must be drastically revised or abandoned. In order that spark stimulation be effective it is necessary that some means be found to control both the number and spacing of the spikes. This may be achieved by some mechanical or electrical device, but the assumption of a 'single, brief shock' stimulus remains violated. The only remaining desirable change of Bishop's technique, that of avoiding actual contact with the skin, was abandoned by Bishop himself in favor of a thin wire electrode. In light of these facts, it is probably advantageous to look elsewhere for a stimulus source. There are available commercially a number of electronic stimulator devices which are capable of producing single pulses or pulse trains with a considerable degree of control. It is probable that one of these devices, with its output applied to a suitably small area, would provide the needed tool for a truly fruitful exploration of single sensory units of the skin. (Author)

AD-624 443 See Fld. 15/5

AD-624 519 See Fld. 5/11

AD-624 579 See Fld. 1/4

AD-624 692 See Fld. 5/9

AD-624 783 See Fld. 6/19

AD-624 830 See Fld. 5/8

5/11. SOCIOLOGY

AD-624 519 Fld. 5/11, 5/10
CFSTI Prices: HC $3.00 MF $0.75
HRB-SINGER INC STATE COLLEGE PA
DISPLACEMENT: SOCIAL AND PSYCHOLOGICAL PROBLEMS.
Final rept.,
by John W. McLanahan, and Robert S. Hostetter. Aug 65, 62p. Rept. no. 87311-F
Contract OCD-PS-65-69
Unclassified report

Descriptors: (*Evacuation, Refugees), (*Refugees, Evacuation), (*Housing, Refugees), Population, Adjustment (Psychology), Anxiety, Disasters, Children

The problem investigated in the study was one of the many involved in population relocation, e.g., evacuation, migration, etc. The study focused upon the general problem of billeting in private homes and upon the specific problem of factors which generate interfamily tension thereby making adjustment difficult. The interfamily adjustment process was approached from the case study viewpoint with emphasis upon identification and description of concrete sources of disruption rather than on an attempt to develop a theory of interpersonal tension. (Author)

AD-624 431 See Fld. 9/2

6/1. BIOCHEMISTRY

AD-624 412 Fld. 6/1
CALIFORNIA UNIV LOS ANGELES
STIMULATION OF STEROID C-11-BETA AND C-18 HYDROXYLATIONS IN RAT ADRENAL HOMOGENATES BY ADENOSINE 3', 5'-PHOSPHATE VIA A MECHANISM NOT REQUIRING ENDOGENOUS PRECURSOR, GLYCOGEN PHOSPHORYLATION OR NADPH GENERATION,
by John E. Creange, and Sidney Roberts. 14 May 65, 16p. Contract NSF-GB-2500 Proj. NR-101-402
Unclassified report

Availability: Published in Steroids, Suppl. II P13-28 1965. Copies to DDC users only.

Descriptors: (*Steroids, Chemical reactions), (*Adenosine phosphates, Biochemistry), (*Adrenal cortex, Steroids), (*Corticosteroid agents, Biosynthesis), Progesterone, Ketones, Alcohols, Saccharide phosphates, Mitochondria

In rat adrenal homogenates fortified with nicotinamide adenine dinucleotide phosphate and glucose 6-phosphate, adenosine 3' ,5'-phosphate (3', 5'-AMP) markedly stimulated conversion of exogenous progesterone to corticosterone, 11-beta-hydroxy-4-pregnene-3,20-dione, and 18,21-dihydroxy-4-pregnene-3,20-dione. With adequate cofactor, total steroid hydroxylations were also enhanced. The action of 3' ,5'-AMP was not eradicated by concentrations of glucose 6-phosphate, glucose 6-phosphate dehydrogenase or glucose 1-phosphate which were maximally effective in enhancing steroid hydroxylations. Glycogen was incapable of supporting corticosteroidogenesis in the presence or absence of 3' ,5'-AMP. Stimulation by 3' ,5'-AMP was as marked with reduced nicotinamide adenine dinucleotide phosphate as with nicotinamide adenine dinucleotide phosphate and glucose 6-phosphate. Enhancement of steroid C-11-beta and C-18 hydroxylations was also produced by adenosine phosphate, adenosine diphosphate, and adenosine triphosphate, but to a lesser extent than with 3' ,5'-AMP. Other nucleotides and adenosine were essentially devoid of activity. (Author)

AD-624 441 Fld. 6/1
CFSTI Prices: HC $3.00 MF $0.50
MARYLAND UNIV COLLEGE PARK INST FOR FLUID DYNAMICS AND APPLIED MATHEMATICS
DENATURATION AND RENATURATION OF DNA: I. EQUILIBRIUM STATISTICS OF COPOLYMERIC DNA.
Technical note,
by Elliott W. Montroll, and Narendra S. Goel. Nov 65, 56p. Rept. no. bn-425
Contract Nonr-595 (22)
Unclassified report

Descriptors: (*Desoxyribonucleic acids, Equilibrium), (*Equilibrium, Desoxyribonucleic acids), Statistical data, Statistical distributions, Temperature, Chemical equilibrium

The one dimensional Ising model, with nearest neighbor correlation only, suitably modified, is used to explain the observed linear dependence of melting temperature of copolymeric DNA with (GC) content. Transition curves are plotted for regular, random, and Markoff distribution of base pairs for various values of a correlation parameter, U, between nearest neighbor bonds. Exact analytic formulae are given for fraction of bonds intact at a particular temperature for various regular distributions for all U and approximate ones for random and Markoff distributions for small U. A scheme is indicated for further improvement. The model, in principle, makes it possible to estimate the statistical distribution of base pairs from the detailed shape of the transition curve. (Author)

AD-624 469 Fld. 6/1, 7/3
CFSTI Prices: HC $2.00 MF $0.50
SOUTHWEST RESEARCH INST SAN ANTONIO TEX
RESEARCH ON ANALYSIS OF AMINO ACIDS BY GAS CHROMATOGRAPHY.
Final rept. Jun 64-Jun 65, -
by D. E. Johnson, and T. Goodson. Sep 65, 35p. Contract AF33 (615)-1823 Proj. AF-7164
Task 716405
AMRL TR-65-148
Unclassified report

Descriptors: (*Amino acids, Gas chromatography), (*Gas chromatography, Amino acids), Fluorine compounds, Esters, Vitamins, Ribonuclease, Blood proteins

A gas-liquid chromatographic procedure was developed for the analysis of the essential amino acids for man using the N-trifluoroacetyl methyl ester derivative. The procedure requires 2-1/2 hours for preparation of the sample and gas chromatographic resolution of all the common protein amino acids. The method was applied to the analysis of standard mixtures of amino acids, a protein hydrolyzate of ribonuclease and the free amino acids in human blood plasma. (Author)

AD-624 274 See Fld. 7/4

AD-624 345 See Fld. 6/5

AD-624 395 See Fld. 6/16

AD-624 528 See Fld. 5/10

AD-624 705 See Fld. 5/10

AD-624 740 See Fld. 6/16

AD-624 794 See Fld. 6/19

AD-624 795 See Fld. 6/19

6/2. BIOENGINEERING

AD-624 487 Fld. 6/2, 6/19, 22/2
CFSTI Prices: HC $4.00 MF $0.75
FROST ENGINEERING DEVELOPMENT CORP DENVER COLO
PERSONNEL RESTRAINT AND SUPPORT SYSTEM DYNAMICS.
Final rept. Jul 62-Dec 63,

by Peter R. Payne. Oct 65, 112p. Contract AF33 (657)-9514 Proj. AF-6301 Task 630102 AMRL TR-65-127

Unclassified report

Descriptors: (*Acceleration tolerance, Safety harness), (*Safety harness, Optimization), Stress (Physiology), Humans, Mathematical models, Biophysics, Aerospace craft, Anthropometry, Dynamics, Vibration, Damping, Body, Mechanical properties

Like any other complex dynamic system the human body responds in a complex way to acceleration inputs which vary rapidly with time. The need to avoid stresses large enough to cause injury to the body usually imposes limits on the permissible input acceleration. The restraint system interposed between a vehicle and its occupant can modify the physiological effects of a vehicle's acceleration - time history. This modification should be made as favorable as possible by minimizing the stresses generated in the vehicle's occupant. To determine optimum dynamic characteristics for the restraint system, its important characteristics, and those of the human body, need to be represented in terms of a mathematical or 'dynamic' model. Through suitable analysis, either mathematical or by means of a computer, those dynamic characteristics of the restraint system can be determined which will minimize the peak stresses developed in its human occupant. A general theory of suitable dynamic models is developed for this type of problem. Closed form solutions for a number of simple cases are presented. In addition a method is shown which permits development of simple dynamic models for the human body utilizing existing experimental data. (Author)

6/3. BIOLOGY

AD-624 248 Fld. 6/3
WALTER REED ARMY INST OF RESEARCH WASHINGTON D C
SOME EFFECTS OF THE MOSQUITO HOST ON MALARIA PARASITES,
by R. A. Ward. 1965, 2p.

Unclassified report

Availability: Published in Proceedings International Congr. Ent. (12th), London (S11) P731 1964 (1965). Copies to DDC users only.

Descriptors: (*Genetics, Infections), (*Hemosporidia, Diseases), Aedes, Plasmodium, Parasites, Viability

Investigations were directed towards an interpretation of mosquito susceptibility in relation to genetic and physiologic factors using a Plasmodium gallinaceum-Aedes aegypti--chick system. The initial study was to determine whether or not susceptibility to infection is under genetic control. Using a system of genetic selection which tended to alleviate some of the deleterious effects of inbreeding, selection for high and low oocyst count was conducted for thirty generations. Selection for high susceptibility was continued for seven generations and then terminated due to inbreeding effects. Mosquitoes selected for low susceptibility showed changes in viability. With the presence of mosquitoes with low susceptibility it was possible to make appropriate genetic crosses to determine the genetic mechanism involved. The fact that the F2, F3 and F4 of crosses between susceptible and resistant strains were no more variable than the F1 and the bimodality exhibited by backcrosses among the susceptible and resistant strains indicated that a single Mendelian factor or a group of closely linked genes was involved. The intermediate values of the F1 generation of all crosses indicate that incomplete dominance is involved. It is not expected that this genetic model of mosquito susceptibility is applicable to all mosquito-pathogen relationships, nor even to different malarial host-parasite systems. However, it does illustrate that a complex host-parasite system may be defined in a more analytical manner.

AD-624 261 Fld. 6/3
SEATO MEDICAL RESEARCH LAB BANGKOK (THAILAND)
DISTRIBUTION IN ALTITUDE OF MOSQUITOES IN NORTHERN THAILAND,
by John E. Scanlon, and Sahem Esah. 1965, 8p.

Unclassified report

Availability: Published in Mosquito News, V25 N2 P137-44 Jun 1965. Copies to DDC users only.

Descriptors: (*Culicidae, Thailand), Distribution, Altitude, Ecology, Viruses, Disease vectors, Anopheles, Aedes

AD-624 421 Fld. 6/3, 8
UNIVERSITY OF SOUTHERN CALIFORNIA LOS ANGELES DEPT OF BIOLOGICAL SCIENCES
A COLLECTION OF WHALE-LICE (CYAMIDAE: AMPHIPODA),
by Yuk M. Leung. 1965, 13p.

Unclassified report

Availability: Published in Bulletin So. Calif. Academy of Sciences V64 Pt3 P132-43 1965. Copies to DDC users only.

Descriptors: (*Cetacea, Parasites), (*Crustacea, Parasites), Marine biology, Aquatic animals

AD-624 422 Fld. 6/3, 8
LONG BEACH STATE COLL CALIF DEPT OF BIOLOGY
BENTHIC POLYCHAETOUS ANNELIDS FROM BERING, CHUKCHI, AND BEAUFORT SEAS,
by Donald J. Reish. 1965, 28p.

Unclassified report

Availability: Published in Proceedings of the United States National Museum, Smithsonian Institution, Washington, D. C. V117 N3511 P131-58 1965.

Descriptors: (*Aquatic animals, Annelida), (*Annelida, Morphology), (*Alaska, Annelida), Distribution, Ocean bottom, Chukchi Sea, Bering Sea, Arctic ocean

Sixty-seven species of polychaetes taken from Alaskan waters are reported. Two new species (Magelona alata and Euchone trisegmentata) and 12 new distribution records are described.

AD-624 456 Fld. 6/3, 6/20, 6/19
CFSTI Prices: HC $2.00 MF $0.50
AMSTERDAM UNIV (NETHERLANDS)
PARALYZING ANIMAL POISONS.
Final technical rept. Aug 64-Jul 65,
by C. Van der Meer, D. Drenth, J. K. Nijhof, T. Piek, and R. T. Simon. Sep 65, 31p. Rept. no. e-1044
Contract DA-91-591-EUC-3487 Proj. DA-2N014501B71D

Unclassified report

Descriptors: (*Poisons, Animals), Insects, Hymenoptera, Larvae, Adults, Venoms, Paralysis, Nervous system, Muscles, Toxicity, Neuromuscular transmission, Chemical analysis, Electrophoresis, Muscle relaxants

The following wasps were studied: Microbracon hebetor Say, Mellinus arvensis L., Philanthus triangulum F., Anoplius viaticus L. and Nemeritis canescens, Gravenhorst. Microbracon venom was shown to produce reversible paralysis in Galleria larvae, Philosamia larvae and Musca adults. Physiological experiments showed that this venom has no effect on nervous conduction in Philosamia, probably has no effect on the excitability of the muscles but does affect neuromuscular transmission. The active compound is probably not a protein. The venom can be separated in a number of compounds. However the active principle can not be eluted from the usual materials used in thin layer separation methods. Philanthus venom was shown to be active on the nerve - muscle preparation of Locusta. It probably affects neuromuscular transmission as well as nervous conduction. Mellinus arvensis L. can be reared in the laboratory. It is very likely that Philanthus trinagulum F. can also be cultured. Experiments were performed using a number of North Sea anemones and a number of test animals. Some indication was obtained that at least some of these anemones produced a paralyzing venom. However, probably due to inadequate techniques, the results obtained are not yet conclusive. (Author)

AD-624 584 Fld. 6/3, 6/15
CFSTI Prices: HC $1.00 MF $0.50
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER WASHINGTON D C
CABBAGE THERAPY. MEDICINAL PROPERTIES OF THE PLANTS ALOE AND CALENDULA,
by L. Sklyarev, and L. Yarina. Nov 65, 7p.
Rept. no. fstc-381-T65-546
Proj. G7-1050 TT 65-64767

Unclassified report

Trans. of Nauka i Zhizn (USSR) v32 n8 p63-4 1965.

Descriptors: (*Plants (Botany), Pharmacology), (*Medicine, Plants (Botany)), (*Vegetables, Medicine), Therapy, Ulcers, Vitamins, Colloids, Ointments, Oils, Sprays, USSR

AD-624 612 Fld. 6/3, 6/13
CFSTI Prices: HC $6.00 MF $1.25
REPUBLIC AVIATION CORP FARMINGDALE N Y
THE INFLUENCE OF DIET ON THE NORMAL FECAL FLORA OF THE CHIMPANZEE.
Final rept. Feb 64-Feb 65,
by Lorraine S. Gall. Nov 65, 218p. Rept. no. RAC-1787-5FR
Contract AF29 (600)-4555 ARL TR-65-21

Unclassified report

Descriptors: (*Chimpanzees, Diet), (*Enterobacteriaceae, Chimpanzees), (*Diet, Enterobacteriaceae), Bacteria, Streptococcus, Fungi, Culture media, Nutrition, Digestive system, Tables

A study was undertaken to determine the effect of diet on the aerobic and anaerobic fecal flora of 12 chimpanzees. The data obtained from the aerobic bacterial studies were summarized in tables grouping the occurrence of the enterobacteriaceae, streptococci and miscellaneous aerobes so that comparisons could be made by sampling period, diet, and for each animal. The data of the occurrence of the anaerobic bacterial cultures were summarized in tables as obligate anaerobes or facultative anaerobes, using the designation derived from the anaerobic 'key' so that the same comparisons could be made as for the aerobic cultures. The aerobic bacteria isolated were more markedly influenced by the individual animal than by diet. The predominance of anaerobes over aerobes and the proportion of strict vs facultative anaerobes were influenced by the composition of the diet fed, and to a lesser extent, the proportion of strict vs facultative anaerobes was influenced by the individual animal. The length of time which the diet was fed also played an important role in the proportion of strict vs facultative anaerobes. (Author)

AD-624 620 Fld. 6/3, 6/5
RESEARCH LAB OF ELECTRONICS MASS INST OF TECH CAMBRIDGE
STAINING PROPERTIES OF LANTHANUM ON CELL MEMBRANES,
by C. F. Doggenweiler, and S. Frenk. 24 Dec 64, 6p. Contract AF33 (615)-1747 ,DA-36-039-AMC-03200 (E)

Unclassified report

Availability: Published in the proceedings of the

National Academy of Sciences, V53, N2 P425-30 Feb 1965. Copies to DDC users only.

Descriptors: (*Biological stains, Lanthanum compounds), (*Membranes (Biology), Biological stains), Cells (Biology), Amphibians, Crustacea, Retina, Nerves, Calcium, Histological techniques

AD-624 649 Fld. 6/3, 14/2
CFSTI Prices: HC $2.00 MF $0.50
NEW HAMPSHIRE UNIV DURHAM DEPT OF MECHANICAL ENGINEERING
A METHOD OF MONITORING THE CARDIAC BEHAVIOR OF PHOLIS GUNNELLUS (LINNAEUS).
Master's thesis,
by Raoul Stanley Barker. 1965, 36p. Contract AF33 (608)-1256
Unclassified report

Descriptors: (*Fishes, Electrocardiography), (*Electrocardiography, Fishes), Heart, Pulse rate, Monitors, Electronic recording systems, Amplifiers, Electrophysiology

The problem consisted of devising and building a device with which the cardiac behavior of the rock gunnel could be monitored in sea water, as water is withdrawn, and in the air. It was found that using the Ampersand electrodes in connection with the medium gain, high impedance, differential amplifier designed and constructed was a most satisfactory method. The field-effect transistors in the first stage provides the necessary large input impedance, and the high gain second stage provides the necessary voltage amplification for clear presentation on a recorder or oscilloscope.

AD-624 349 **See Fld. 6/5**

AD-624 464 **See Fld. 1/2**

AD-624 527 **See Fld. 6/6**

AD-624 532 **See Fld. 6/11**

AD-624 625 **See Fld. 2/4**

AD-624 640 **See Fld. 8**

6/4. BIONICS

AD-624 854 Fld. 6/4
CFSTI Prices: HC $1.00 MF $0.50
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
CAN A MACHINE THINK.
by V. Tugarinov. 9 Nov 65, 10p. Rept. no. ftd-TT-65-789
TT 65-64810
Unclassified report

Unedited rough draft trans. from Sovetskaya Molodezh (USSR) n11 p3 Jan 12 1965.

Descriptors: (*Cybernetics, Theory), Creativity, Machines, Artificial intelligence, USSR

AD-624 290 **See Fld. 9/2**

AD-624 439 **See Fld. 20/6**

AD-624 477 **See Fld. 6/16**

6/5. CLINICAL MEDICINE

AD-624 247 Fld. 6/5
WALTER REED ARMY INST OF RESEARCH WASHINGTON D C
KOREAN HEMORRHAGIC FEVER,
by John E. Scanlon. 1965, 8p.
Unclassified report

Availability: Published in Transactions of North American Wildlife and Natural Resources Conference (13th P167-74) Mar 8-10 1965. Copies to DDC users only.

Descriptors: (*Hemorrhage, Diseases), (*Epidemiology, South Korea), Military medicine, Fevers, Etiology, Rodents, Mites, Arthropods, Diagnosis

The purpose of the report is to provide a short historical summary of the experience of the United States military forces with the disease, the epidemiological observations which were made, and the more recent developments in the study of the disease.

AD-624 258 Fld. 6/5
ARMED FORCES INST OF PATHOLOGY WASHINGTON D C
CLEAR-CELL SARCOMA OF TENDONS AND APONEUROSES. AN ANALYSIS OF 21 CASES,
by Franz M. Enzinger. 22 Feb 65, 12p.
Unclassified report

Availability: Published in Cancer V18 N9 P1163-74 Sep 1965. Copies to DDC users only.

Descriptors: (*Tendons, Cancer), (*Cancer, Tendons), Connective tissue, Bone, Muscles, Cells (Biology), Morphology (Biology), Feet, Legs, Joints (Physiology), Diagnosis, Excision, Pathology, Histological techniques

Twenty-one examples of a morphologically distinctive tumor originating from tendons or aponeuroses are analyzed. The tumors were slow growing and painless and several had been present for many years before treatment was sought. They occurred chiefly in young adults, predominated in women and were most common in the region of the foot and knee. They intimately bound to tendons or aponeuroses and were composed of small nests or aggregates of round or fusiform, palestaining cells showing prominent nucleoli. The cells were of great uniformity and showed no evidence of biphasic cellular differentiation. Follow-up data, obtained in 19 of the patients, indicated a tendency toward repeated local recurrence of the tumor and eventual development of metastatic growth after a protracted clinical course. In 4 patients metastasis occurred 10 or more years after the initial treatment. The differential aspects are discussed briefly and the descriptive term 'clearcell sarcoma of tendons and aponeuroses' is suggested. (Author)

AD-624 259 Fld. 6/5
ARMED FORCES INST OF PATHOLOGY WASHINGTON D C
POSTIRRADIATION SARCOMAS OF THE UTERUS,
by Henry J. Norris, and Herbert B. Taylor. 12 Apr 65, 6p.
Unclassified report

Availability: Published in Obstetrics and Gynecology V26 N5 P689-94 Nov 1965. Copies to DDC users only.

Descriptors: (*Cancer, Reproductive system), (*Radiation effects, Cancer), Radiotherapy, Pathology, Neoplasms, X rays, Diagnosis, Radiological dosage

Clinical and pathologic findings in 17 patients with sarcoma of the uterus and a history of pelvic irradiation are presented. The sarcomas were 9 mixed mesodermal tumors, 4 carcinosarcomas, 1 stromal sarcoma, and 3 sarcomas of unclassified type. The interval between pelvic irradiation and the development of the sarcoma varied from 7 to 40 years (median 16.4 years). Twelve per cent of the patients with uterine sarcomas in the AFIP material had a history of pelvic irradiation. A similar percentage can be obtained by tabulating the reports of series of sarcomas in which it is indicated whether or not the patients had antecedent irradiation. Most sarcomas arising after irradiation are mixed mesodermal tumors or carcinosarcomas. None of the patients with leiomyosarcomas in the AFIP material and very few in the literature had prior pelvic irradiation. The literature contains too few patients with follow-up data of sufficient duration to determine whether pelvic cancer is more frequent after pelvic irradiation. It is recommended that patients be followed more than 20 years after irradiation to detect postirradiation cancer. (Author)

AD-624 260 Fld. 6/5
BROOKE GENERAL HOSPITAL FORT SAM HOUSTON TEX
ANOMALOUS PULMONARY VENOUS RETURN,
by Hu A. Blake, Robert J. Hall, and William C. Manion. 1965, 9p.
Unclassified report

Availability: Published in Circulation V32 P406-14 Sep 1965. Copies to DDC users only.

Descriptors: (*Cardiovascular system, Anomalies), Heart, Veins, Lungs, Pathology, Blood circulation, Infants, Children, Embryology

One hundred and thirteen selected anomalous pulmonary venous returns have been well documented anatomically. Twenty-seven variations were seen. With the use of simplified diagrams, these have been correlated with related cases in the literature. Emphasis has been placed on transitional forms with one anomaly shading off into the next, rather than upon a series of neat, compartmentalized, classic types of anomalous pulmonary venous return. It is hoped that the broad anatomic spectrum shown will promote additional understanding and interest. (Author)

AD-624 263 Fld. 6/5
WALTER REED ARMY INST OF RESEARCH WASHINGTON D C
INTRAVASCULAR COAGULATION IN IRREVERSIBLE SHOCK,
by Robert M. Hardaway. 1965, 8p.
Unclassified report

Availability: Published in Shock and Hypotension P621-8 1965. Copies to DDC users only.

Descriptors: (*Blood coagulation, Shock (Pathology)), (*Shock (Pathology), Blood coagulation), Capillaries, Etiology, Diagnosis, Therapy, Histology, Pathology, Dogs

AD-624 334 Fld. 6/5
CLINICAL INVESTIGATION CENTER OAKLAND CALIF
RADIOTHYROXINE TURNOVER IN OBESITY.
Interim technical rept.,
by Frederick L. Benoit, and Frederick Y. Durrance. Nov 65, 10p. Rept. no. cic-TR-15
Contract Nonr-222 (51) Proj. NR-105-156,MR005.12-1103.15
Unclassified report

Availability: Published in the American Journal of the Medical Sciences, V249 N6 P647-53 Jun 1965. Copies to DDC users only.

Descriptors: (*Obesity, Thyroxine), (*Thyroxine, Metabolism), Thyroid gland, Males, Excretion, Liver, Gastrointestinal system, Etiology, Labeled substances, Radioactive isotopes

The radiothyroxine turnover in 10 obese males was compared with that in 8 normal controls. The halftime was significantly shortened in the obese group to 4.3 days, although no significant change was observed in the extrathyroidal organic iodine pool or the hormone degradation rate. It is proposed that these findings are the result of increased excretion of thyroxine through the liver and gastrointestinal tract. (Author)

AD-624 335 Fld. 6/5
CLINICAL INVESTIGATION CENTER OAKLAND CALIF

SEROLOGIC INDICES OF MENTAL DISORDERS.
Final technical rept.,
by Howard D. Kurland. Nov 65, 6p. Rept. no. cic-TR-14
Contract Nonr-222 (51) Proj. NR-105-156,MR005.12-2101.4

Unclassified report

Availability: Published in the American Journal of Psychiatry, V121 N9 P909-11 Mar 1965. Copies to DDC users only.

Descriptors: (*Mental disorders, Serodiagnosis), Blood proteins, Psychiatry, Males, Globulins, Personality, Neuroses, Psychoses

The report describes a study of the serum proteins of a group of 173 physically healthy males hospitalized for neuropsychiatric disorders. Serum macroglobulin levels revealed a serologic distinction between groups of patients with personality disorders, neurotic-depressive reactions, and schizophrenic reactions. (Author)

AD-624 339 Fld. 6/5
CLINICAL INVESTIGATION CENTER OAKLAND CALIF
GOODPASTURE'S SYNDROME. A CLINICOPATHOLOGIC ENTITY.
Interim technical rept.,
by F. L. Benoit, D. B. Rulon, G. B. Theil, P. D. Doolan, and R. H. Watten. 5 Jun 63, 22p. Rept. no. CIC-TR-9
Contract Nonr-222(51) Proj. NR-105-156, MR005.12-1700.7 NAVMED MR005.12-1700.7

Unclassified report

Availability: Published in American Journal of Medicine, V37 N3 P424-44 Sep 1964. Copies to DDC users only.

Descriptors: (*Kidneys, Diseases), (*Lungs, Diseases), (*Urinary system, Pathology), Hemorrhage, Etiology, Diagnosis, Medical examination, Therapy, Cells (Biology), Morphology (Biology), Histological techniques, Biopsy

Conclusion: The homogeneity of this group of patients marks Goodpasture's syndrome as a distinct clinicopathologic entity. This report presents the findings in nine patients and reviews forty-three previously recorded cases. The syndrome is comprised of initial hymoptysis in a youndg man, followed by pulmonary infiltration, anemia, renal failure and a short, fatal course. Pathologic findings are limited to the lungs and kidneys. They include pulmonary hemorrhage and an alveolar septal lesion, as well as glomerulonephritis, first focal and later disseminated. To date no effective therapy has been found. The accumulated evidence suggests that a viral agent may be etiologic and that an antuommune mechanism is operative. (Author)

AD-624 340 Fld. 6/5
CLINICAL INVESTIGATION CENTER OAKLAND CALIF
MYOGLOBINURIA AND PERSISTENCE OF FETAL MYOGLOBIN.
Interim technical rept.,
by Frederick L. Benoit, George B. Theil, and Raymond H. Watten. 3 Jun 64, 10p. Rept. no. CIC-TR-13
Contract Nonr-222(51) Proj. NR-105-156, MR005.12-1408.7 NAVMED MR005.12-1408.7

Unclassified report

Availability: Published in Annals of Internal Medicine, V61 N6 P1133-9 Dec 1964. Copies to DDC users only.

Descriptors: (*Proteins, Muscles), (*Muscles, Diseases), Embryos, Adults, Urine, Biopsy, Electrophoresis, Absorption spectrum, Histological techniques, Etiology, Musculoskeletal diseases, Hemoglobin

An adult patient with recurrent myoglobinuria is reported in whom fetal myoglobin was demonstrated in the urine and muscle. Some biochemical differences between fetal and adult myoglobin are described. No abnormalities of several parameters of muscle metabolism could be shown in the patient. It is concluded that persistence of fetal myoglobin represents another etiologic classification for some cases of 'idiopathic' myoglobinuria. (Author)

AD-624 345 Fld. 6/5, 6/1
PENNSYLVANIA UNIV PHILADELPHIA DEPT OF BIOCHEMISTRY
REFRACTORY HEMOLYTIC DISEASE ASSOCIATED WITH GLUCOSE-6-PHOSPHATE DEHYDROGENASE DEFICIENCY AND HEMOSIDEROSIS: REPORT OF A CASE.
by Craig J. Canfield, Yaye F. Herman, Robert H.Herman, and Marcel E. Conrad. 21 Dec 64, 12p.

Unclassified report

Availability: Published in the Journal of Laboratory and Clinical Medicine, V66 N1 P96-106 Jul 1965. Copies to DDC users only.

Descriptors: (*Blood diseases, Oxidoreductases), (*Oxidoreductases, Blood diseases), Deficiency diseases, Anemias, Hemolysis, Erythrocytes, Hemoglobin, Urine, Spectroscopy, Biopsy, Labeled substances, Radioactive isotopes

Refractory hemolytic anemia was found in a young Caucasian male who also had hemosiderosis and excreted an unidentified urinary pigment. He had no glucose-6phosphate dehydrogenase (G-6-PD) activity in red cell hemolysates by spectrophotometric analysis. However, further studies of the pentose phosphate pathway by 1-14C-glucose revealed that this pathway was operative in the intact red blood cell although it operated at a level less than normal. Family studies demonstrated hyperferremia in other family members but no deficiency of G-6-PD could be demonstrated. (Author)

AD-624 347 Fld. 6/5
WALTER REED ARMY INST OF RESEARCH WASHINGTON D C DEPT OF SEROLOGY
THE SERODIAGNOSIS OF EARLY SYPHILIS: HOW TO UTILIZE THE NEWER LABORATORY TESTS,
by Bernard J. Fogel, Robert W. Sanders, Earl H.Fife,Jr., and Robert I. Anderson. 1965, 6p.

Unclassified report

Availability: Published in Clinical Pediatrics V4 N8 P447-52 Aug 1965. Copies to DDC users only.

Descriptors: (*Treponema pallidum, Diseases), (*Serodiagnosis, Treponema pallidum), Public health, Infants, Adolescents, Adults, Birth, Statistical data, Tests, Antigens + antibodies

Since 1958 there has been a continual increase in congenital syphilis as well as syphilis among teenagers and individuals under 25 years of age. Although some cases may be diagnosed on clinical or anamnestic evidence alone, the majority will require additional serologic confirmation. Fortunately, there have been many improvements in the existing routine serologic tests for syphilis, as well as the introduction of new highly specific treponemal tests. The nontreponemal tests which detect the presence of reagin are invaluable as screening procedures and provide a reliable index of the efficacy of therapy. If a patient has a persistent reactive nontreponemal test without clinical or anamnestic evidence of syphilis it is necessary to confirm the diagnosis with one or more of the specific treponemal antigen tests. At present, the TPI and possibly the FTAABS are the most specific of these for the detection of syphilis. A reactive result in either of these tests is indicative of a present or past syphilis infection. In many areas the TPI and FTA are not available and the RPCF test is routinely performed. It should be cautioned that a nonreactive RPCF test does not exclude the possibility of syphilis. Only when the negative RPCF is confirmed by a nonreactive TPI, FTA or both, should the diagnosis of biologic false positive reaction be made. (Author)

AD-624 349 Fld. 6/5, 6/3
WALTER REED ARMY INST OF RESEARCH WASHINGTON D C
INTESTINAL MANIFESTATIONS OF CHOLERA IN INFANT RABBITS; A MORPHOLOGIC STUDY,
by H. Thomas Norris, Richard Finkelstein, Nirmal K. Dutta, and Helmuth Sprinz. 15 Apr 65, 10p.

Unclassified report

Availability: Published in Laboratory Investigation V14 N7 P1428-36 1965. Copies to DDC users only.

Descriptors: (*Cholera, Rabbits), Intestines, Tissues (Biology), Morphology (Biology), Diarrhea, Dehydration, Electrolytes (Physiology), Semipermeability, Membranes (Biology), Mucus, Cells (Biology), Histology, Excretion, Toxins + antitoxins, Pathology

The clinical effect and the morphologic response of the intestinal tract to an experimental, intestinal Vibrio cholerae infection can be reproduced in infant rabbits by perioral administration of sterile filtrates of ultrasonically disrupted vibrios and of young broth cultures in which vibrios have been grown. Findings indicate that the choleraic effect is due to a vibrio toxin which is present in each of these agents. The choleraic effect does not depend on tissue invasion, which characterizes infection by most enteric pathogens. The toxic moiety responsible for the choleraic effect is not identical with cholera endotoxin. In fact, potent endotoxin given alone does not cause diarrhea in the model. The choleraic toxin does not affect the continuity and anatomical integrity of the intestinal epithelial lining; it has little effect on the histologic appearance of individual intestinal epithelial cells which does not exclude a physiologic alteration affecting the transport mechanism of fluid and electrolytes. However, the choleraic moiety does affect the microcirculation of the intestinal mucosa. There are hyperemia, stasis, and interstitial edema, conditions which could materially contribute to the fluid loss into the gut lumen. (Author)

AD-624 350 Fld. 6/5, 6/13
UTAH UNIV SALT LAKE CITY
DETECTION OF AN ENZOOTIC PLAGUE FOCUS BY SEROLOGICAL METHODS,
by D. C. Cavanaugh, B. D. Thorpe, J. B. Bushman, P. S. Nicholes, and J. H. Rust,Jr.. 1965, 7p.

Unclassified report

Availability: Published in Bull. Org. Mond. Sante Bull. Wld Hlth. Org. V32 P197-203 1965. Copies to DDC users only.

Descriptors: (*Pasteurella pestis, Serodiagnosis), (*Serodiagnosis, Pasteurella pestis), Antigens ; antibodies, Immune serums, Rodents, Pest control, Epidemiology, Tables

Complement-fixation and haemagglutination tests, utilizing a highly purified, specific Fraction 1 antigen of Pasteurella pestis, have been employed to detect specific plague antibody in the sera of rodents resident in a sylvatic plague focus. The data show that while the isolation of P. pestis is seasonal and rather rare, antibodies can be detected for long periods of time and with great frequency in rodents surviving infection. The authors recommend that serological methods be incorporated into epidemiological surveys and control programmes involving rodent plague. (Author)

AD-624 351 Fld. 6/5
WALTER REED ARMY INST OF RESEARCH WASHINGTON D C DEPT OF EXPERIMENTAL PATHOLOGY
DEMONSTRATION OF ALKALINE PHOSPHATASE IN GROSS SPECIMENS OF SMALL INTESTINE,
by Helen Roland Jervis. 1965, 5p.
Unclassified report

Availability: Published in Stain Technology V40 N4 P219-22 1965. Copies to DDC users only.

Descriptors: (*Phosphoric monoester hydrolases, Histological techniques), (*Histological techniques, Phosphoric monoester hydrolases), (*Intestines, Phosphoric monester hydrolases), Biological stains, Pathology

The Burstone azo-dye coupling technique for the demonstration of alkaline phosphatase has been applied successfully to gross specimens of small intestine. Guts are opened and washed in cold saline; fixed 2 hr or longer in cold 10% saline-formol, 10% Caformol, or 10% neutral formalin; washed in cold distilled water and Tris-HCl buffer (pH 8.6); incubated for 20 min or longer in Burstone medium (Enzyme Histochemistry, 1962) containing naphtol AS-MX phosphate and red violet LB salt; washed in water and stored in formalin. After incubation, tissues fixed for 18 hr or more may be embedded in paraffin, cut and stained for routine histologic study. Regions of the intestine that have alkaline phosphatase activity in the striated border are stained red, with an intensity proportional to the enzymatic activity present. Lesions in the mucosa usually show light staining or none. The distribution of alkaline phosphatase activity as revealed by gross staining has been confirmed by the study of representative fresh frozen sections stained in the same medium. Staining in toto is recommended to demonstrate variations of the activity of alkaline phosphatase in large specimens either normal or pathologic, and to facilitate recognition and photography of even small lesions in pathologic guts. (Author)

AD-624 401 Fld. 6/5
WALTER REED ARMY INST OF RESEARCH WASHINGTON D C DEPT OF IMMUNOCHEMISTRY
USE OF HEPARIN IN DISTINGUISHING PLASMA KALLIKREIN FROM PF/DIL,
by David J. McConnell, Lawrence J. Kagen, and Elmer L. Becker. 19 Feb 65, 5p.
Unclassified report

Availability: Published in Proceedings of the Society for Experimental Biology and Medicine V119 P652-56 1965. Copies to DDC users only.

Descriptors: (*Heparin, Globulins), (*Globulins, Permeability), Blood serum, Blood plasma, Gamma globulin, Inhibition, Enzymes, Immunology

The ability of heparin to inhibit both kallikrein and Pf/dil was demonstrated. Since about 6 times as much heparin was required to inhibit kallikrein as Pf/dil, it was possible to determine the amount of each in an unknown solution from the per cent inhibition produced by a given amount of heparin. Using this method, the nature of the permeability activity of diluted serum was investigated and found to be caused solely by Pf/dil. (Author)

AD-624 408 Fld. 6/5
ARMED FORCES INST OF PATHOLOGY WASHINGTON D C
TERATOMA OF THE ORBIT: A REPORT OF TWO CASES,
by Andrew P. Ferry. 1964, 10p. Contract N1H-NB-5379
Unclassified report

Availability: Published in Survey of Ophthalmology, V10 N5 P434-42 1965. Copies to DDC users only.

Descriptors: (*Eye, Neoplasms), (*Neoplasms, Eye), Tissues (Biology), Germ cells, Embryology, Diagnosis, Medical examination, Children, Histology, Ophthalmology

AD-624 415 Fld. 6/5, 6/16
WALTER REED ARMY INST OF RESEARCH WASHINGTON D C DIV OF BASIC SURGICAL RESEARCH
BILIRUBIN-CARBON-14 METABOLISM IN ISOLATED INTESTINAL LOOPS,
by John L. Cameron, H. Kenneth Sleeman, Tohru Abei, and Frank L. Iber. 1965, 8p.
Unclassified report

Availability: Published in Surgery, Gynecology and Obstetrics V121 P291-8 Aug 1965. Copies to DDC users only.

Descriptors: (*Bile pigments, Intestines), (*Metabolism, Bile pigments), Labeled substances, Radioactive isotopes, Excretion, Urine, Radioactivity, Gastrointestinal system, Parenteral infustions, Surgery, Surgical techniques, Dogs

An experimental preparation wherein all the biliary excretions are diverted into an isolated intestinal loop has been used to determine the fate of bilirubin after it is excreted into the gastrointestinal tract. Radioactive bilirubin was injected intravenously into these animals. Very little radioactivity was excreted in the urine or feces. Animals were sacrificed at periods ranging from 4 to 14 days. At sacrifice most of the radioactivity was found to be present in the isolated intestinal loop, although not as bilirubin or urobilinogen. The substance or substances containing the radioactivity were found to be a polar, water soluble fraction. These products are presumably further breakdown products of urobilinogen, and account for the consistently observed deficiency between theoretic daily bilirubin production and fecal urobilinogen excretion. (Author)

AD-624 419 Fld. 6/5
COLUMBIA UNIV NEW YORK COLL OF PHYSICIANS AND SURGEONS
INCORPORATION OF TRITIATED THYMIDINE BY OCULAR TUMORS IN VITRO,
by Frank M. Polack. 1965, 4p. Contract Nonr-266 (71) Grant ,N1H-NB-00492
Unclassified report

Availability: Published in American Journal of Ophthalmology V60 N1 P46-9 Jul 1965. Copies to DDC users only.

Descriptors: (*Eye, Neoplasms), (*Neoplasms, Labeled substances), (*Nucleosides, Neoplasms), In vitro analysis, Desoxyribonucleic acids, Synthesis, Cells (Biology), Metosis, Retina, Pathology, Radioactive isotopes, Ophthalmology

The paper deals with the in vitro uptake of H3-thymidine by intraocular tumors, mainly retinoblastomas. Because the labeling rate is higher than the mitotic rate, by using the former with some tumors where mitoses are rarely seen, their reproductive capacity can be estimated. This would be valuable information when used in conjunction with the clinical and pathologic picture. (Author)

AD-624 430 Fld. 6/5
CFSTI Prices: HC $1.00 MF $0.50
NAVAL MEDICAL RESEARCH UNIT NO 2 TAIPEI (TAIWAN)
SUMMARIES OF RESEARCH.
Rept. for 1 Jan-30 Jun 65.
30 Jun 65, 15p.
Unclassified report

Descriptors: (*Naval research, Medical research), (*Medical research, Naval research), Cholera, Electrolytes (Physiology), Glucose, Semipermeability, Intestines, Excretion, Diarrhea, Pathology, Sodium, Transport properties, Pleuropneumonia-like organisms, Mycoplasma, Respiratory diseases, Trematodes, Fishes, Hemoglobin, Culicidae, Disease vectors, Chemotheropy, Toxins + antitoxins, Lepidoptera, Etiology, Taiwan

AD-624 502 Fld. 6/5
MASSACHUSETTS EYE AND EAR INFIRMARY BOSTON OPHTHALMIC PLASTICS LAB
USES OF PLASTICS IN OPHTHALMOLOGY,
by William Stone,Jr., H. Yasuda, and M. F. Refojo. 1964, 6p. Contract Nonr-366201 Grant, N1H-NB-4281 Proj. NR-105-163
Unclassified report

Availability: Published in Transactions of the American Chemical Society P201-6 Sep 1964. Copies to DDC users only.

Descriptors: (*Ophthalmology, Prosthetics), (*Plastics, Prosthetics), (*Prosthetics, Plastics), Cornea, Plastic lenses, Eye

Ophthalmology has used, and is still testing experimentally, plastics as: (a) a transparent replacement for scarred corneas in those cases (60 to 70%) wherein Eye Bank corneal transplantation is not indicated; (b) a drain to reduce pressure of the eye in cases of glaucoma when classical methods of treatment are inadequate; (c) an artificial substitute for the lens in the interior of the eye after cataract operation; (d) a replacement for the vitreous gel (occupying most of the eye interior) in cases of vitreous opacification or total retinal detachment; (e) a girdle to create a buckle in retinal detachment surgery; (f) an implant replacing the entire eye after enucleation with muscles attached to it to create movement of the false eye simulating exactly the movement of the normal eye; and (g) miscellaneous replacement of bony cdefects in and around the eye. The concept of the incompletely covered foreign body was evolved in connection with (a) and (f) above; namely, the plastic artificial cornea and the post-enucleation implant. In each case, the plastic or metal is exposed to the exterior environment and epithelial cells do not heal to like epithelial cells. The semi-exposed implant has been maintained without extrusion for as long as 15 years to date.

AD-624 503 Fld. 6/5
MASSACHUSETTS EYE AND EAR INFIRMARY BOSTON OPHTHALMIC PLASTICS LAB
PERMEABILITIES OF POLYMERS AND THEIR MEDICAL APPLICATIONS: CORNEAL POLYMER IMPLANTS,
by H. Yasuda, M. F. Refojo, and W. Stone,Jr.. 1964, 2p. Contract Nonr-3662 (01) Grant ,N1H-NB-4281 Proj. NR-105-163
Unclassified report

Availability: Published in Transactions of the American Chemical Society P207-8 Sep 1964. Copies to DDC users only.

Descriptors: (*Polymers, Permeability), (*Cornea, Implants), (*Implants, Permeability), Diffusion

Results of the investigation indicate that even an 'extremely permeable' polymer membrane does not offer sufficient permeability to maintain the normal physiological activity of the cornea, and it is necessary to have macroscopic holes or pores in the polymeric films to minimize the physiological perturbation caused by the polymer implant.

AD-624 600 Fld. 6/5
CALIFORNIA UNIV OAKLAND NAVAL BIOLOGICAL LAB
PUBLICATIONS OF THE NAVAL BIOLOGICAL LABORATORY, SCHOOL OF PUBLIC HEALTH, UNIVERSITY OF CALIFORNIA AND NAVAL

MEDICAL RESEARCH UNIT NO. 1, BERKELEY, CALIFORNIA.
Reprints for 1942-1965.
1965, 36p.

Unclassified report

Availability: Published in various reprints. Copies to DDC users only.

Descriptors: (*Medical research, Bibliographies), (*Naval research, Medicine), (*Public health, Medical research), Virus diseases, Respiratory diseases, Germicides, Antibiotics, Bacteria, Fungi, Radiation effects, Immunology

AD-624 619 Fld. 6/5
COLUMBIA UNIV NEW YORK COLL OF PHYSICIANS AND SURGEONS
EL DESTINO DE TRANSPLANTE DE CORNEA (RESULTS OF CORNEA TRANSPLANTS),
by Frank M. Polack, and George K. Smelser.
1964, 16p. Contract Nonr-266

Unclassified report

Availability: Published in Archivos de la Sociedao Oftalmologica Hispano-Americana, V25 NL P78-92 1965. Copies to DDC users only.

Descriptors: (*Cornea, Transplantation), (*Transplantation, Labeled substances), Nuclei (Biology), Nucleosides, Tissues (Biology), Radioactive isotopes, Rabbits, Ophthalmology

It has been shown that the nucleus of keratocytes and endothelial cells can be permanently labelled with radioactive Thymidine. This isotope can be retained for the life of the cell. Labelled cells used as donor material for penetrating keratoplasties in rabbits persist in the receptor for periods over 12 months, indicating that homografts survive as true chimeras. Colagen tissue labeled with C-14 Glicine retains its radioactivity almost without loss in corneas grafted for several months, thus indicating that this tissue is not replaced by the host. (Author)

AD-624 621 Fld. 6/5, 11/9
CEDARS-SINAI MEDICAL CENTER LOS ANGELES CALIF CORNEA EYE INST
PRINCIPLES OF POLYMER IMPLANT APPLICATIONS,
by W. Stone Jr., H. Yasuda, M. Seiderman, and S. Ore. 1965, 25p. Contract Nonr-3662 (01) Grant ,N1H-NB-1027 Proj. NR-105-163

Unclassified report

Availability: Published in Plastics in Surgical Implants N386 P18-42 1965. Copies to DDC users only.

Descriptors: (*Implants, Polymers), (*Plastic surgery, Implants), (*Eye, Prosthetics), Cornea, Retina, Bone, Plastics, Acrylic resins, Silicones, Halocarbon plastics, Tissues (Biology), Surgical supplies, Surgical techniques, State-of-the-art reviews, Ophthalmology

Previously, it was believed that, for a wound to heal, like epithelial cells must meet and join like cells. With the plastic artificial cornea it has now been shown that a wound can heal and create a barrier to bacteria and fluids with epithelial cells ending at a connective tissue barrier. The principles making possible the retention in tissues of the incompletely covered foreign body are discussed. The utilization in tissues of the post-enucleation movable implant and plastic artificial cornea is described, and the uses of methyl methacrylate, silicones, Teflon, and hydrophilic polymers as related to the implantation of plastic artificial corneas, retinal detachment surgery, glaucoma drainage tubes, the repair of bony defects, replacing the vitreous of the eye, and substitution for the eye's crystalline lens are reported. Also mentioned are the problems which are encountered in implant material and fabrication. The possibilities of the incompletely covered foreign body, especially in other branches of surgery, are pointed out.

AD-624 623 Fld. 6/5
ARMY TROPICAL RESEARCH MEDICAL LAB APO 851 NEW YORK
NUCLEOPROTEIN CHANGES IN THE INTESTINAL MUCOSA OF PATIENTS WITH TROPICAL SPRUE,
by T. W. Sheehy, and A. Guardiola-Rotger. 1965, 5p.

Unclassified report

Availability: Published in Journal of the Indian Medical Profession V12 N3 P5359- 62 Jun 1965. Copies to DDC users only.

Descriptors: (*Nucleoproteins, Deficiency diseases), (*Deficiency diseases, Nucleoproteins), (*Intestines, Nucleoproteins), Tissues (Biology), Mucus, Melatolism, Folic acid, Vitamin B complex, Diagnosis, Ribonucleic acids, Desoxyribonucleic acids, Therapy

Biochemical homogenates of jejunal mucosa taken from normal individuals and patients were studied for their RNA-P-DNA-P activity. The activity of RNA-P was found decreased and the activity of DNA-P was found increased in untreated sprue patients. Therapy with folic acid and/or vitamin B12 tended to restore the RNA/DNA ratio towards normal. (Author)

AD-624 662 Fld. 6/5
CFSTI Prices: HC $2.00 MF $0.50
STANFORD UNIV CALIF
THE RESPONSE OF A SIMULATED DETACHED RETINA TO VARIOUS DYNAMIC FORCES.
Master's thesis,
by John W. Silvis. Aug 65, 32p. Contract AF33 (608)-1278

Unclassified report

Descriptors: (*Retina, Vibration), (*Healing, Retina), Eye, Anatomical models, Rotation, Acceleration, Simulation, Dynamics, Centrifuges, Test equipment, Ophthalmology

The experiments suggest that the application of rotational vibrations and/or the application of approximately a 2G force field could greatly enhance the natural settling of a detached retina in the clinical case and give a firm reattachment around the tear, eliminating the need for surgical intervention. The model studies to date substantiate the feasibility of a migratory reattachment under rotational vibration and/or centrifugal forces and justify proceeding with the next phase of the research project--that of completing the model centrifugal tests and then studying the response of detached retinas in animals by rotational vibrations and/or centrifugal forces including the effectiveness of various osmolar agents on migratory settling. (Author)

AD-624 680 Fld. 6/5, 7/4
CFSTI Prices: HC $3.00 MF $0.50
TEXAS UNIV AUSTIN
THE EFFECT OF CONTROLLED ELECTROPHORESIS ON DEPOSITION OF FLUORIDE ON TOOTH STRUCTURE.
Master's thesis,
by William J. Curtis. Jun 65, 52p. Contract AF33 (608)-1283

Unclassified report

Availability: Microfiche only after original copies exhausted.

Descriptors: (*Teeth, Fluorination), (*Fluorides, Electrophoresis), (*Pain, Sensitivity), Stimulation, Therapy, Electrodeposition, Perception, Reduction, Quantitative analysis

The study attempted to identify any uptake of fluoride by the teeth quantitatively and relate its presence to the magnitude of the current used in the electrophoretic technique. A treatment for relief of hypersensitivity was sought.

AD-624 741 Fld. 6/5, 13/2
CFSTI Prices: HC $2.00 MF $0.50
TOKYO UNIV (JAPAN) DEPT OF PHYSICAL THERAPY AND MEDICINE
RESPIRATORY DISEASES DUE TO AIR POLLUTION ON TOKYO-YOKOHAMA AREA.
Final rept., 15 Apr 64-14 Apr 65,
by Tatsushi Ishizaki. Jul 65, 42p. Contract DA-92-557-FEC-37308 Proj. 2N014501B71D Task 00-008FE
ARDG J-188

Unclassified report

Descriptors: (*Respiratory diseases, Air pollution), (*Air pollution, Respiratory diseases), Acetylcholine, Allergy, Carbon monoxide, Sulfur compounds, Dioxides, Lungs, Bronchi, Respiration, Toxicity, Dust, Thresholds (Physiology), Guinea pigs, Japan

The research centered upon the question of whether air pollutants, such as sulfur dioxide etc., influence the onset of asthma attack in patients as well as experimental animals. The respiratory symptoms among the patients of chronic bronchitis were followed up so as to clarify the correlation between the incidence of them and the environmental factors related to the air pollution. The results of investigation are summarized as follows: (1) The influence of sulfur dioxide to guinea pigs was studied on the experimental asthma, measuring the respiratory sensitivity to acetylcholine. Exposures to 30 ppm sulfur dioxide seemed to increase the respiratory sensitivity to acetylcholine, though statistically not significant. (2) Pulmonary diffusing capacity for carbon monoxide was measured among asthmatic patients including similar type to T-Y asthma as well as normal individuals. No significant differences were detected among D sub LCO of each group. Accordingly, it is suggested that there were no such changes among asthmatic patients including T-Y type as seen in the lung of emphysema or alveo-capillary block. (3) Patients with chronic bronchitis picked up from the previous survey were considered to be sensitive to the changes of air pollutants in the air, since the respiratory symptoms in them increased in parallel with the increase of air pollutants; i.e. dust fall, suspended particles and sulfur dioxide in the air. (Author)

AD-624 805 Fld. 6/5
ARMED FORCES INST OF PATHOLOGY WASHINGTON D C
BARIUM SULPHATE AND ZINC SULFIDE DEPOSITS RESULTING FROM GOLF-BALL INJURY TO THE CONJUNCTIVA AND EYELID,
by Frank B. Johnson, and Lorenz E. Zimmerman.
5 May 65, 7p. Contract PHT-3T1-NB-5379-03S1

Unclassified report

Availability: Published in the American Journal of Clinical Pathology V44 N5 P533-8 Nov 1965. Copies to DDC users only.

Descriptors: (*Eye, Wounds + injuries), Pathology, Tissues (Biology), Histology, Diagnosis, X-ray diffraction analysis, Children, Barium compounds, Sulfates, Zinc compounds, Sulfides

Deposition of barium sulfate and zinc sulfide in the conjunctival and palpebral tissues of 2 children occurred as a consequence of taking golf balls apart. These compounds are known to be ingredients of the liquid center of at least 1 American golf ball. In the first of the 2 cases, the child was unaware of being struck in the eye, and the source of the conjunctival foreign body remained a mystery for 3 1/2 years. Information about the second case provided the clues needed to solve the mystery of the first case. Barium sulfate and zinc sulfide seem to be remarkably inert provoking chiefly a macrophagic reaction, and even after 1 year there was negligible evidence of tissue damage. The presence of barium sulfate in the tissues was proved by x-ray diffraction studies as well as by use of the electron probe, but the presence of zinc sulfide could be demonstrated only by the latter. (Author)

AD-624 806 Fld. 6/5
ARMED FORCES INST OF PATHOLOGY WASHINGTON D C
NEW EVIDENCE FOR EXCESSIVE ACCUMULATION OF Z-BAND MATERIAL IN NEMALINE MYOPATHY,
by Harold M. Price, Gerald B. Gordon, Carl M. Pearson, Theodore L. Munsat, and Joe M. Blumberg. 16 Sep 65, 9p. Proj. 3A012501B813

Unclassified report

Availability: Published in Proceedings of the National Academy of Sciences V54 N5 P1398-1406 Nov 1965. Copies to DDC users only.

Descriptors: (*Muscles, Pathology), Biopsy, Histology, Electron microscopy, Diseases, Morphology (Biology)

An electron microscopic study of muscle biopsies from three children, two of whom are sisters, with clinical and histologic features of 'nemaline myopathy,' has been reported. These previously undescribed electron microscopic observations indicate that the pathologic fibrillar material characteristic of this disease is similar to and continuous with the substance which makes up the Z-bands. It is suggested that nemaline myopathy is a disorder characterized by the excessive production and accumulation of Z-band material. Furthermore, it is postulated that at least a portion of this 'stored' Z-line substance may be tropomyosin B. In addition, the findings in these three cases have demonstrated that normal or nearly normal conventional histopathologic preparations from patients with a congenital, relatively nonprogressive muscular weakness do not rule out nemaline myopathy. (Author)

AD-624 249 **See Fld. 6/13**

AD-624 338 **See Fld. 5/10**

AD-624 409 **See Fld. 6/16**

AD-624 511 **See Fld. 6/13**

AD-624 620 **See Fld. 6/3**

AD-624 635 **See Fld. 6/19**

AD-624 778 **See Fld. 14/1**

AD-624 780 **See Fld. 5/9**

AD-624 804 **See Fld. 6/13**

6/6. ENVIRONMENTAL BIOLOGY

AD-624 527 Fld. 6/6, 6/3
CFSTI Prices: HC $1.00 MF $0.50
NAVAL SCHOOL OF AVIATION MEDICINE PENSACOLA FLA
THE EFFECTS OF ENVIRONMENTAL TEMPERATURE CHANGES ON THE EKG OF THE SQUIRREL MONKEY (SAIMIRI SCIUREUS),
by Arnold Eskin, and David C. Riccio. 12 May 65, 18p. Rept. no. nsam-926
Proj. MR005.13-9010 Task 5
NAVMED MR005.13-9010-502

Unclassified report

Descriptors: (*Temperature, Electrocardiography), (*Electrocardiography, Monkeys), (*Pulse rate, Temperature), Environment, Heat tolerance, Body temperature, Respiration

Electrocardiograms of four monkeys were recorded during exposure of the animals to air slowly heated 5 -8C above room level. Neither rectal nor skin temperature was affected. Deceleration of the heart and increase in T-wave amplitude under these conditions are noteworthy phenomena. As a control, EKG records for two of the monkeys were similarly recorded during exposure to slowly cooling air. Rectal temperature showed a very small change. Heart rate and respiration rate increased and T-wave amplitude decreased considerably. (Author)

6/8. FOOD

AD-624 306 Fld. 6/8
CFSTI Prices: HC $1.00 MF $0.50
BJORKSTEN RESEARCH FOUNDATION MADISON WIS
A COMPARISON OF TENDERNESS PARAMETERS IN DEHYDRATED MEAT.
Technical rept.,
by Fred A. Andrews, and Chester E. Underwood. Sep 65, 20p. Contract DA-10-129-AMC-2102 (N) Proj. DA-7X84-06-033 USA NLABS FD-25

Unclassified report

Descriptors: (*Dehydrated foods, Meat), (*Meat, Acceptability), (*Military rations, Meat), Beef, Physical properties, Tests, Measurement, Adenosine phosphates, Iron, Spectroscopy, Taste

Longissimus dorsi muscles from 32 beef carcasses were analyzed for tenderness using the Warner-Bratzler shear test, a new rotating knife tenderometer, and an organoleptic panel. In addition, 18 mineral, adenosine triphosphate, and proximate analyses were made. The rotating knife tenderometer and the Warner-Bratzler shear test were found to correlate well with the sensory panel (r=+0.57, -0.66). Iron content of the tissues was also found to correlate with the sensory panel (r = -0.48), but a lower significant level than either the tenderometer or shear methods. (Author)

AD-624 571 Fld. 6/8, 13/4, 13/8
CFSTI Prices: HC $2.00 MF $0.50
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER WASHINGTON D C
METHODS FOR CALCULATING CANNING PRODUCTION COSTS; ACCELERATED METHOD FOR DETERMINING MOISTURE IN DRIED VEGETABLES: STUDYING THE USE OF SORBIC ACID IN CANNING FRUIT AND VEGETABLES AND RECONSTITUTION OF VEGETABLES DRIED BY SUBLIMATION,
by Sh. B. Gandelman, A. I. Lyubivaya, E. Osinska, and Ya. Granovskaya. Oct 65, 27p.
Rept. no. fstc-381-T65-481
Proj. G7-1050 TT 65-64770

Unclassified report

Trans. of Konservnaya i Ovoshchesushilnaya Promyshlennost (USSR) n6 p20-4, 31-6, 41-3, 45-7 1965. Presented at All-Union Conference on new methods for storing and transporting potatoes, vegetables and vine crops. Expanded meeting for tasting sublimation-dried products.

Descriptors: (*Food, Preservation), Storage, Freeze drying, Dehydrated foods, Moisture, Determination, Vegetables, Fruits, Production, Cost, Processing, Packaging, USSR

AD-624 585 Fld. 6/8, 6/13
CFSTI Prices: HC $1.00 MF $0.50
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER WASHINGTON D C
CONCERNING THE HYGIENIC STUDY OF ENZYME PREPARATIONS PRODUCED BY MICROFUNGI AND THEIR POSSIBLE USE IN THE FOOD INDUSTRY,
by V. P. Bogoroditskaya, and N. E. Dyubyuk. Nov 65, 19p. Rept. no. fstc-381-T65-532
Proj. G7-1050 TT 65-64771

Unclassified report

Trans. of Voprosy Pitaniya (USSR) n4 p9-13 1965.

Descriptors: (*Enzymes, Food), (*Fungi, Enzymes), (*Toxicity, Enzymes), Beverages, Bread, Vegetables, Cereals, Fruits, Fishes, Storage, Preparation, Toxins + antitoxins, Nutrition, Mice, USSR

Conclusions: (1) Large doses of enzyme preparations of the fungi Trichothecium roseum, Aspergillus oryzae strain No. 4761, and Aspergillus awamori strain No. 673 exerted no harmful effect upon white mice when administered perorally to animals in acute experiments. (2) In acute experiments on white mice with intraperitoneal injections of large doses, the same preparations caused a clinical and pathological picture of disease in the experimental animals, largely coinciding with the symptom complex arising when the animals are fed fusarium-infected grain. (3) Peroral administration of several aggravated 'industrial' doses of enzyme preparations from the fungi indicated above to white mice over a period of 30 days caused no diseases or visible pathological anatomical changes. (4) The data obtained give no basis for objecting to the use of a preparation of the fungus Trichothecium roseum for extensive industrial testing in the brewing industry, as well as enzyme preparations of the fungi Aspergillus oryzae strain No. 4761 and Aspergillus awamori strain No. 673 for the same tests in the baking industry. (5) The production of the indicated enzyme preparations and their use in the brewing and baking industries should be conducted according to the corresponding technological conditions. (Author)

6/10. INDUSTRIAL (OCCUPATIONAL) MEDICINE

AD-624 747 **See Fld. 5/9**

6/11. LIFE SUPPORT

AD-624 342 Fld. 6/11, 6/19
AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB OHIO
OBSERVATIONS ON RATS EXPOSED TO A SPACE CABIN ATMOSPHERE FOR TWO WEEKS.
Final rept.,
by Philip Felig. Sep 65, 10p. Rept. no. AMRL-TR-65-63
Proj. AF-7164 -Task 7164-04

Unclassified report

Presented at the Annual Meeting of the Aerospace Medical Association, New York City, 26 Apr 65.

Availability: Published in Aerospace Medicine V36 N9 P858-63 Sep 1965. Copies to DDC users only.

Descriptors: (*Pressure breathing, Space simulation chambers), (*Oxygen consumption, Closed ecological systems), Spacecraft cabins, Oxygen, Life support, Toxicity, Respiratory system, Pathology, Hematology, Hemopoietic system, Mortality rates, Tables, Rats

The effects of breathing 98 percent oxygen at 258 mm, Hg were studied in male albino rats maintained for two weeks in a closed system environmental chamber. Three separate experiments were conducted, in each of which temperature, humidity, and CO2 concentration were carefully regulated. Control animals were maintained in identical cages in room air. All but one of the 140 rats exposed to oxygen survived for a mortality rate of less than one percent and a total exposure time of 1,960 ratdays. No significant differences as compared to controls were noted in growth rates or in pulmonary, hepatic, renal, and thyroid function. A very modest reduction in hematocrit observed in each experiment may be attributable to a mild suppression of erythropoiesis. (Author)

AD-624 532 Fld. 6/11, 6/3, 14/2, 10/1
CFSTI Prices: HC $1.00 MF $0.50
NAVAL RESEARCH LAB WASHINGTON D C
THE EFFECT OF LIGHT INTENSITY AND

THICKNESS OF CULTURE SOLUTION ON OXYGEN PRODUCTION BY ALGAE.
Interim rept.,
by R. L. Shuler, and W. A. Affens. 15 Oct 65, 24p. Rept. no. nrl-6331
Proj. RR-007-08-44-5503

Unclassified report

Descriptors: (*Algae, Oxygen), (*Oxygen, Production), Light, Intensity, Energy conversion, Culture media, Growth, Equations, Life support, Nuclear powered vessels, Submarines

Data from a small cylindrical culture unit with variable annular culture chambers indicate that: (a) the rate of oxygen evolution by an algal culture in the linear phase of growth is a logarithmic function of light intensity, and (b) the rate of oxygen evolution per unit volume of suspension is linearly related to the reciprocal of culture thickness. These two relationships have been combined in an empirical equation, which gives the expected variation of the oxygen production rate with light intensity, culture thickness, and suspension volume. The applicability of this equation has been tested on a larger, multi-light culture unit in this laboratory. The agreement between the experimental and calculated oxygen production rates was very satisfactory, suggesting that the equation is not limited to a particular culture unit but may have wide applicability. The efficiency of the culture unit from the viewpoint of electrical power utilization has been calculated, and it was found that the maximum conversion of electrical energy to chemical energy based on oxygen evolution was only 0.51 percent. The maximum efficiency in converting light energy to chemical energy was approximately 12 percent. An extrapolation of the experimental results suggests that approximately 2 cubic feet and 30 kilowatts would be required to provide for the oxygen needs of one man. (Author)

AD-624 556 Fld. 6/11
CFSTI Prices: HC $3.00 MF $0.50
MSA RESEARCH CORP CALLERY PA
POTASSIUM SUPEROXIDE ATMOSPHERE CONTROL UNIT.
Final rept. Mar-Dec 64,
by M. J. McGoff. Sep 65, 54p. Rept. no. msar-64-123
Contract AF33 (615)-1518 Proj. AF-6373 Task 637302
AMRL TR-65-44

Unclassified report

Descriptors: (*Life support, Controlled atmospheres), (*Controlled atmospheres, Peroxides), (*Peroxides, Life support), (*Potassium compounds, Peroxides), Carbon dioxide, Oxygen, Closed ecological systems, Oxygen equipment

Superoxides were used in a new approach to atmosphere control systems for aerospace flight. This approach offers the control of dynamic systems and the low power requirement of passive systems. This technique can be adapted to unusual geometries with low weight and volume requirements. Potassium superoxide discs comprise the bulk of this new unit serving as a structural self-support and yet offering adequate carbon dioxide absorption and oxygen evolution. The discs are 3.77 in. in diameter x 3/16 in. thick and have a 7/8 in. diameter center hole. They are placed in a cylindrical aluminum housing with a 0.080 in. clearance between the shell and discs. The discs are separated from each other by integrally molded 1/16 in. protrusions. A one-man version of the unit for 24 hour service weighs 12 pounds, requires 17 watts power continuously, is 32 in. long x 4 in. in diameter and contains 110 discs. The disc configuration permits both radial and axial circulation at a throughput of 9 cfm and 1.6 in. of water. Tests with a one-man simulator in a 130 cu ft compartment showed adequate oxygen delivery and control at less than 1% carbon dioxide. (Author)

AD-624 754 Fld. 6/11, 6/19, 13/10.1
CFSTI Prices: HC $1.00 MF $0.50
NAVAL SUBMARINE MEDICAL CENTER GROTON CONN
STUDIES OF CILIARY MUCUS TRANSPORT IN A CLOSED CABIN ATMOSPHERE.
by Robert E. Sonnenburg. 2 Dec 64, 17p. Rept. no. 443 Vol. 23/No. 25
Proj. MR005.14-3002 NAVMED MR005-14-3002-4-18

Unclassified report

Descriptors: (*Respiratory system, Closed ecological systems), (*Life support, Submarines), Confined environments, Controlled atmospheres, Respiration, Cells (Biology), Tissues (Biology), Mucus, Esophagus, Vegetables, Plants (Botany), Viability, Amphibians, Statistical analysis

In an attempt to determine what effect, if any, a sealed cabin atmosphere might have on living tissue, observations of frog tissue were made during a routine patrol of a Fleet Ballistic Missile (FBM) submarine. Ciliary mucus flow rates were determined in the esophageal tissue of frogs, since results with these tissues have proved comparable to mammalian respiratory cilia. Bottles of surface air were taken aboard the submarine to permit comparison of tissues exposed to this normal air with those exposed to the ambient air of the submarine. Results showed a definite decrement in ciliary activity in those tissues exposed to submarine air. In addition, sprouted seeds of vegetables and flowers were taken aboard. Despite all efforts to maintain their nutrition and light exposure, they ceased to grow and after 3 weeks had turned brown and died. Ion activity which might account for these results is discussed and further investigation is recommended. (Author)

AD-624 671 **See Fld. 13/2**

6/12. MEDICAL AND HOSPITAL EQUIPMENT AND SUPPLIES

AD-624 504 Fld. 6/12, 11/9, 11/10
MASSACHUSETTS EYE AND EAR INFIRMARY BOSTON OPHTHALMIC PLASTICS LAB
STERILIZATION OF POLYMERS,
by H. Yasuda, M. F. Refojo, and W. Stone,Jr.. 1964, 7p. Contract Nonr-3662 (01) Grant ,NIH-NB-4281 Proj. NR-105-163

Unclassified report

Availability: Published in Transactions of the American Chemical Society P209-15 Sep 1964. Copies to DDC users only.

Descriptors: (*Polymers, Purification), (*Plastics, Purification), (*Synthetic rubber, Purification), (*Medical equipment, Purification), Implants, Prosthetics, Radiation chemistry, Radiation damage, Antimetabolites, Gases, Ethylenes, Oxides, Sorption

A discussion is given of physical and chemical changes which may occur in polymers during sterilization processes. The following sterilization methods are considered: Irradiation, protoplasmic poisons, and ethylene oxide gas.

AD-624 622 Fld. 6/12, 14/2
RESEARCH LAB OF ELECTRONICS MASS INST OF TECH CAMBRIDGE
CALIBRATION OF ELECTROMAGNETIC FLOWMETERS FOR BLOOD FLOW MEASUREMENT,
by W. D. Jackson, J. R. Ellis, and G. O. Barnett. 1963, 5p. Contract NIH-HTS-5550

Unclassified report

Availability: Published in Progress in Cardivascular Diseases V5 P543-56 1963. Copies to DDC users only.

Descriptors: (*Flowmeters, Blood circulation), (*Blood circulation, Flowmeters), Calibration, Errors, Cardiovascular diseases, Obstruction (Physiology)

The calibration of electromagnetic flowmeters is known to be independent of flow conditions and fluid parameters in a few special cases such as axisymmetric flow in a rigid pipe of circular cross section. However, the operating conditions of blood flow measurement involve circumstances where flow is not axi-symmetric. It has been assumed that the calibration factor is constant in such situations. In order to examine this problem in an experimental model, velocity profile distortion was introduced by the placement of bends and obstructions into the flow channel upstream from the metering section. The modification of the calibration due to the lack of axi-symmetry in the flow was examined. The effect of channel geometry and size and number of electrodes in minimizing the calibration error was also examined. It was shown that in flow conditions approximating those encountered in biological research, significant calibration errors could result from lack of axi-symmetry in the flow. (Author)

AD-624 840 Fld. 6/12
CFSTI Prices: HC $1.00 MF $0.50
DIRECTORATE OF SCIENTIFIC INFORMATION SERVICES OTTAWA (ONTARIO)
SUVAG AND SUVAG-LINGUA SPEECH ANALYSERS,
by Tetar Guberina. Aug 65, 3p. Rept. no. t-4-Y TT 65-64804

Unclassified report

Trans. of mono. Suvag and Suvag-Lingua, Zagreb, n.d. 2p. Also available from NRC as C-5488.

Descriptors: (*Earphones, Deafness), Speech, Analysis, Pathology, Hearing, Rehabilitation Amplifiers, Loudspeakers, Audiofrequency

SUVAG II is an apparatus for finding the optimal auditory field corresponding to the particular requirements of persons hard of hearing. By listening to speech within an optimal field, as determined by means of the apparatus, rehabilitation may be achieved and an increase of comprehension secured, whereas the trouble may persist stubbornly when the listening is done with the unaided ear. The apparatus has shown itself particularly useful in the fitting and adjustment of hearing aids. The sonic characteristics of a hearing aid are adjusted to characteristics which, after rehabilitation, give the pathological ear the greatest possibilities of hearing. (Author)

6/13. MICROBIOLOGY

AD-624 249 Fld. 6/13, 6/5
CFSTI Prices: HC $2.00 MF $0.50
NORTH CAROLINA UNIV CHAPEL HILL DEPT OF ENVIRONMENTAL SCIENCES AND ENGINEERING
NUTRITIONAL REQUIREMENTS OF ENTEROTOXIGENIC STRAINS OF STAPHYLOCOCCUS AUREUS.
Annual progress rept. 1 Sep 64-1 Sep 65,
by Robert A. Mah. 1 Sep 65, 34p. Contract DA-49-193-MD-2374

Unclassified report

See also AD-419 090.

Descriptors: (*Staphlococcus aureus, Nutrition), (*Culture media, Staphylococcus aureus), Growth, Amino acids, Glucose, pH, Salts, Synthesis, Biological assay, Toxins + antitoxins, Inhibition, Serodiagnosis, Immune serums, Tables

A 7-amino acid medium has been devised which permits good growth of S. aureus S-6 comparable to that obtained on an equivalent amount of com-

plex medium. Further work is in progress to simplify this medium. Current findings show that when the amino acid, glutamic acid, serves as a carbon source in defined media, enterotoxin B is produced. The amount of toxin formed under these conditions is approximately 25 times greater than that when glucose serves as a carbon source. Substrates which supported growth but not toxin formation were ribose, glycerol, and pyruvate. Of the five-carbon sugars tested, only ribose supported growth whereas xylose and arabinose did not. The Kreb's cycle intermediates, succinate, citrate, acetate, oaxaloacetate, alpha-ketoglutarate, and malate did not support growth. A new method for the assay of enterotoxin has been developed which permits the detection of 0.06 micrograms of toxin. This is the microtiter hemagglutination inhibition method which is fast, accurate, repeatable, easy to read, and requires only micro-amounts of reactants. It has been adopted for routine use in our laboratory. Ether-extracted protein hydrolysate powder (PHP) still supported growth and toxin production when vitamins were added to the medium. In the absence of added vitamins, growth occurs but no toxin is produced. (Author)

AD-624 423 Fld. 6/13
MINNESOTA UNIV MINNEAPOLIS DEPT OF MICROBIOLOGY
THE LIFE-CYCLE OF AN ACTINOPHAGE FOR STREPTOMYCES VENEZUELAE,
by Lily A. Jones, and S. G. Bradley. 5 Jan 65, 8p. Contract Nonr-710 (36) Grant ,PHS-AI-01601 Proj. NR-103-490

Unclassified report

Availability: Published in J. Gen. Microbiol. V40 P191-8 1965. Copies to DDC users only.

Descriptors: (*Streptomyces, Viruses), Life cycle, Culture media, Adsorption, Ions, Time, Temperature, Growth, Immunology, Electron microscopy

The life-cycle of actionphage MSP2 in host Streptomyces venezuelae s 13 was divisible into distinct stages by manipulating the cultural conditions and by the use of certain chemical compounds. Two types of attachment were observed: reversible and irreversible. Reversible attachment occurred instantaneously and was relatively independent of temperature and phage concentration. The controlling variables in extent of adsorption were the amount of host mycelium and ionic content of the medium. Irreversible attachment was time dependent and temperature dependent. Addition of acriflavine allowed phage attachment and injection to occur, but suppressed some stage of intracellular growth or maturation. Acriflavine prevented formation of viable phage, but phage components were demonstrated immunologically and electronmicroscopically. Chilling of phage-infected cultures allowed lysis to proceed, with release of preformed phages; but no new phages were formed. These results indicate that the life-cycle of actinophage MSP2 is experimentally separable into attachment, injection, growth, maturation and lysis. (Author)

AD-624 483 Fld. 6/13
WALTER REED ARMY INST OF RESEARCH WASHINGTON D C DIV OF COMMUNICABLE DISEASE AND IMMUNOLOGY
GENETIC MAPPING OF VI AND SOMATIC ANTIGENIC DETERMINANTS IN SALMONELLA,
by E. M. Johnson, Barbara Krauskopf, and L. S. Baron. 2 Mar 65, 8p. Contract DA-49-193-MD-2376

Unclassified report

Availability: Published in Journal of Bacteriology, V90 N2 P302-8 Aug 1965. Copies to DDC users only.

Descriptors: (*Salmonella, Genetics), (*Antigens + antibodies, Salmonella), Mutations, Chromosomes, Carbohydrates, Culture media, Immune serums, Serodiagnosis

The Vi antigen and somatic antigen 9 were transferred to Salmonella typhimurium recipients by mating with S. typhosa Hfr TD-7, and the genetic determinants of these antigens were located. A gene responsible for Vi antigen expression, ViB, was found to be associated with the inlpurA-pyrB linkage group, and the order ViB-inl-purA-pyrB was established. The determinant of somatic antigen 9 was found closely linked to the his gene, and cotransduction of these determinants was accomplished with phage PLT-22. Moreover, all conjugation and transduction hybrids which received the somatic antigen 9 determinant concurrently lost somatic antigen 4. Similarly, S. typhosa hybrids produced by transfer of his and the gene for somatic antigen 4 from S. typhimurium Hfr B2, or by cotransduction of these genes with PLT-22, also lost somatic antigen 9. These results indicated that the genetic determinants of the somatic antigens 9 and 4 are probably allelic. A second Vi antigen determinant, ViA, located near his, was discovered in matings of S. typhimurium Hfr B2 with a Vinegative S. typhosa recipient. Vi-positive S. typhosa hybrids were obtained from this cross in which neither parent expressed the Vi antigen, indicating that this Vi determinant of S. typhosa is present also in S. typhimurium. (Author)

AD-624 491 Fld. 6/13
CINCINNATI UNIV OHIO DEPT OF MICROBIOLOGY
BIOTIN TRANSPORT AND ACCUMULATION BY CELLS OF LACTOBACILLUS PLANTARUM. I. GENERAL PROPERTIES OF THE SYSTEM,
by James R. Waller, and Herman C. Lichstein. 19 Apr 65, 11p. Contract nsf-G-19578 ,NIH-EF-10443 Proj. NR-103-555

Unclassified report

Availability: Published in Journal of Bacteriology V90 P843-52 Oct 1965. Copies to DDC users only.

Descriptors: (*Lactobacillus, Vitamin B complex), (*Vitamin B complex, Lactobacillus), Temperature, pH, Metabolism, Growth, Inhibition, Antimetabolites, Glucose, Transport properties

Resting cells of Lactobacillus plantarum were saturated with bound biotin by incubation in phosphate buffer with biotin and glucose for 2 hr. This bound biotin was stable to wide changes in temperature, pH, and reaction time. Free biotin could be eluted from the cells by suspending them in cold water or saline. Immersing the cells in boiling water for 30 sec released all free biotin. Recoveries of added biotin exceeded 92%. Free biotin uptake by bound biotin-saturated cells occurred by two mechanisms. One process was independent from temperature (Q sub 10, 1.25), pH, cellular metabolism, and inhibition by iodoacetate. The other mechanism was dependent upon temperature (Q sub 10, 2.58; optimum, 37 C), pH (optimum, 7.5), and active cellular metabolism, and was inhibited by iodoacetate. Activation energies of 3,700 and 13,800 cal per mole, respectively, were observed for glucose-independent and dependent free biotin uptake. Both processes exhibited approximately the same degree of inhibition by homobiotin. Higher concentrations of homobiotin were required to inhibit growth than to inhibit free biotin uptake. Intracellular-extracellular ratios as high as 600 were established in the absence of glucose, whereas ratios of nearly 4,000 occurred in the presence of glucose. (Author)

AD-624 511 Fld. 6/13, 6/5
CFSTI Prices: HC $2.00 MF $0.50
DUKE UNIV DURHAM N C
ACTIVE IMMUNIZATION VS. COCCIDIOIDES IMMITIS.
Summary rept., 1 Mar-31 Jul 65,
by Norman F. Conant. 31 Jul 65, 34p. Contract DA-18-064-AMC-231 (A)

Unclassified report

Descriptors: (*Coccidioides, Immunity), (*Antigens + antibodies, Coccidioides), Serodiagnosis, Immune serums, Biological assay, Culture media, Tables, Rabbits

Cellular, sonicated and autoclaved-sonicated antigens derived from arthrospores and from spherules were tested by the complement fixation method against cooled sera obtained from rabbits infected with C. immitis. These tests were performed to detect antigenic differences between arthrospores and spherules. An attempt also was made to correlate these results with previous data obtained by testing similar antigens with immune rabbit sera. An angar-gel double diffusion assay was performed to demonstrat the number of precipitin bands present in soluble extracts derived from arthrospores and from spherules, and the relationship of these precipitin bands among the extracts. The indirect immuno-fluorescent assay was utilized to confirm the antigenicity of the cell wall of arthrospores and of spherules, and of their articulate fractions. (Author)

AD-624 569 Fld. 6/13
CFSTI Prices: HC $1.00 MF $0.50
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER WASHINGTON D C
SOVIET SCIENTISTS HAVE SUCCESSFULLY RECONSTRUCTED PROTEIN FROM BACTERIOPHAGE,
by V. Azernikov. Nov 65, 6p. Rept. no. fstc-381-T65-548
Proj. G7-1050 TT 65-64768

Unclassified report

Trans. of Nauka i Zhizan (USSR) n6 p4-5 1965.

Descriptors: (*Bacteriophages, Proteins), Viruses, Desoxyribonucleic acids, Ribonucleic acids, Recrystallization, X-ray diffraction analysis, USSR

AD-624 624 Fld. 6/13
NAVAL MEDICAL RESEARCH UNIT NO 2 TAIPEI (TAIWAN)
AMMONIUM TOXICITY, A POTENTIAL ARTIFACT IN PREPARATION OF TOXINS.
Research rept.,
by E. M. Neptune Jr., and T. G. Mitchell. 1965, 3p. Proj. MR005.09-1040.1 NAVMED MR005-09-1040-1-22

Unclassified report

Availability: Published in proceedings of cholera research symposium Phs pub. no. 1328 P159 Jan 24-29 1965, Honolulu, Hawaii. Copies to DDC users only.

Descriptors: (*Cholera, Toxins + antitoxins), (*Toxins + antitoxins, Preparation), (*Ammonium compounds, Toxicity), Pathology, Electrolytes (Physiology), Osmosis, Intestines, Amphibians, Taiwan

AD-624 749 Fld. 6/13
CFSTI Prices: HC $1.00 MF $0.50
JIKEI UNIV TOKYO (JAPAN) SCHOOL OF MEDICINE
GENETIC ANALYSIS OF MICROORGANISM BY MIXED INFECTION OF ACTIVE PHAGE PARTICLES AND PHAGE OR BACTERIAL DNA.
Final rept. 19 Jun 63-18 Jun 64,
by Isamu Kondo. 29 Sep 65, 14p. Rept. no. J-162
Contract DA-CRD-AG-S92-544-63-G12 Proj. DA-2N012501B707

Unclassified report

Descriptors: (*Salmonella, Genetics), (*Desoxyribonucleic acids, Bacteriophages), (*Bacteriophages, Genetics), Microorganisms, Infections, Antigens + antibodies, Growth, Japan

The phage mediated conversion (or lysogenic conversion) of salmonella 0 (1) antigen by a sub 1 phage could be changed into the DNA mediated

transformation when Sg cells are incubated with purified DNA extracted from a sub 1 phage and active particles of a sub 10s phage. As far as the resuspension of such mix infected Sg cell is directly examined before lysis for the agglutinability to the anti-3 (1) factor serum, a small proportion of them is shown to be really converted into the one shared with 0 (1) antigen. However the converted character is almost confined in the generation of such converted cells so that it is scarcely inherited into their progeny cells. On the other hawd, uch 0 (1) antigen conversion coul not be seen upon the mix infection with a lub 1 DNA together with a sub 2 phage particles which is incompatible with a sub 1 phage in the growth at the same host cells, or upon mix incubation with a sub 1 phage DNA alone. (Author)

AD-624 804 Fld. 6/13, 6/5
ARMED FORCES INST OF PATHOLOGY WASHINGTON D C GEOGRAPHIC PATHOLOGY DIV
ATPICAL MYCOBACTERIA AND HUMAN DISEASE-A REVIEW,
by Robert C. Brown. 1965, 8p.
Unclassified report

Availability: Published in International Pathology Bulletin of International Academy of Pathology, Wash., D. C. V6 N4 NP Oct 1965. Copies to DDC users only.

Descriptors: (*Mycobacterium, Diseases), Diagnosis, Histology, Mycobacterium tuberculosis, Lymphatic system, Reticulo-endothelial system, Bone, Pathology, Necrosis, Etiology, Therapy, Resistance (Biological), Epidemiology, Reviews

Clinically and histopathologically, the localized form of atypical mycobacteriosis is indistinguishable from disease caused by M. tuberculosis. Rarely, disseminated fatal infections result from atypical mycobacteria, but such cases are almost always causally related to strikingly poor host resistance. The disseminated form of the disease involves lymph nodes, the reticuloendothelial system, and bone most severely. Histopathologically, this involvement is characterized by variable amounts of non-caseous necrosis, histiocytic proliferation, and hypertrophy, but by little, if any, granulomatous response or caseous necrosis; numerous intra- and extra-cellular acid-fast bacilli are usually demonstrable in tissue section. To prove that a given atypical mycobacterium is the cause of the disease, one must relate the organism to an appropriate lesion. Even under these conditions the etiology may remain in doubt if there is consistent association with another pathogen, e.g., M. tuberculosis. Generally, atypical mycobacteria are less pathogenic for human beings than is M. tuberculosis. However, the atypical mycobacteria are notoriously resistant to commonly used antituberculous drugs, and may cause fatal disease. (Author)

AD-624 350 See Fld. 6/5

AD-624 585 See Fld. 6/

AD-624 612 See Fld. 6/3

6/14. PERSONNEL SELECTION AND MAINTENANCE MEDICAL

AD-624 781 See Fld. 5/9

6/15. PHARMACOLOGY

AD-624 526 Fld. 6/15, 6/19
CFSTI Prices: HC $1.00 MF $0.50
NAVAL SCHOOL OF AVIATION MEDICINE PENSACOLA FLA
A COMPARISON OF EFFECTIVENESS OF SOME ANTIMOTION SICKNESS DRUGS USING RECOMMENDED AND LARGER THAN RECOMMENDED DOSES AS TESTED IN THE SLOW ROTATION ROOM,
by Charles D. Wood, Ashton Graybiel, and Robert S. Kennedy. 16 Aug 65, 14p. Rept. no. nsam-945
Proj. MR005.13-6001 Task 1
NAVMED MR005.13-6001-1-121
Unclassified report

Descriptors: (*Antimotion sickness agents, Effectiveness), Drugs, Motion sickness, Dosage, Rotation, Stress (Physiology), Tolerances (Physiology), Amphetamines, Scopolamine, Antihistaminics, Antiemetics

In a previous study the recommended doses of some antimotion sickness drugs were tested on the Slow Rotation Room (human centrifuge). In the present study increased doses of these same drugs were used to investigate any possible increase in efficiency. Twice the dose of hyoscine (1.2 mg) failed to increase its effectiveness; however, when it was used in combination with d-amphetamine the total number of tolerated head movements exceeded the sum of that with these drugs when they were tested alone. A marked increase in effectiveness of d-amphetamine (20 mg) was noted over that in the earlier study in which a dose of 10 mg was used. Meclizine (Bonamine 150 mg), thiethylperazine (Torecan 30 mg), trimethobenzamide (Tigan 750 mg), and prochlorperazine (Compazine 15 mg) all were less effective than in the previous study when one third of these doses was used. The combination of hyoscine and d-amphetamine was the most effective drug, followed by hyoscine, d-amphetamine, and meclizine, in that order. (Author)

AD-624 552 Fld. 6/15, 6/20
CFSTI Prices: HC $2.00 MF $0.5u
TULANE UNIV NEW ORLEANS LA
IONIC FACTORS IN TOXIC ACTION.
Final rept., 1 Jun 63-30 Nov 65,
by Mary Kathleen Carter. 30 Nov 65, 27p. Contract DA-18-108-AMC-152 (A) Proj. DA 4X99-26-001 Task 4X99-26-001-01
Unclassified report

Descriptors: (*Acetylcholine, Urinary system), (*Electrolytes (Physiology), Excretion), (*Cholinesterase inhibitors, Kidneys), Toxicity, Sarin, Soman, Organic phosphorus compounds, Parasympathomimetic agents, Skeletal muscle relaxants, Blood, Muscles, Contraction, Nerves, Stimulation, Ions, Transport properties, Dogs

The renal effect of acetylcholine (increased electrolyte excretion) in dogs is potentiated by Soman, Sarin and DFP. No consistent changes in electrolytes in muscle or blood was noted in cats when muscle contraction from indirect stimulation was blocked with DFP (40 mg/kg) or when muscle contractions were later elicited. (Author)

AD-624 395 See Fld. 6/16

AD-624 584 See Fld. 6/3

6/16. PHYSIOLOGY

AD-624 343 Fld. 6/16
WALTER REED ARMY INST OF RESEARCH WASHINGTON D C DEPT OF METABOLISM
PERITONEAL FLUID ABSORPTION. I. EFFECT OF DEHYDRATION ON KINETICS,
by LeRoy Shear, John J. Castellot, and Kevin G. Barry. 15 Dec 64, 14p.
Unclassified report

Availability: Published in Journal of Laboratory and Clinical Medicine, V66 N2 P232-244 Aug 1965. Copies to DDC users only.

Descriptors: (*Peritoneum, Absorption (Biological)), (*Absorption (Biological), Osmotic pressure), (*Dehydration, Absorption (Biological)), Body fluids, Parenteral infusions, Reaction kinetics, Membranes (Biology), Semipermeability, Serum albumin, Radioactive isotopes, Labeled substances, Tables, Dogs

Kinetics of absorption of intreperitoneally administered 0.9 per cent saline solution were studied in 11 normal dogs in whom the state of hydration was varied. The animals were allowed no fluids for either 16 hours (controls) or 40 hours (dehydrated) prior to the study. In both groups, the rate of fluid absorption was most rapid immediately after saline infusion when osmotic pressure gradient across the peritoneum was maximal. As water was absorbed and solute entered the peritoneal cavity, peritoneal fluid osmolality gradually increased and the absorptive rate decreased. Within 90 to 120 minutes, peritoneal fluid and serum solute concentrations were completely equilibrated in both controls and dehydrated dogs. Thereafter, absorptive rate was nearly constant (mean 16.8 ml. per hour). The rate of fluid obsorption during the first 2 hours following intraperitoneal infusion was significantly greater in the dehydrated group and was directly related to the severity of dehydration as estimated by serum osmolality at the start of the study. After 2 hours, when the transperitoneal osmotic pressure gradient no longer existed, the rate of fluid absorption was independent of the state of hydration. Results indicate that dehydration enhances peritoneal fluid absorption because it is associated with an increased crystalloid osmotic pressure gradient across the peritoneal membrane. (Author)

AD-624 355 Fld. 6/16
RESEARCH LAB OF ELECTRONICS MASS INST OF TECH CAMBRIDGE
IMPULSES ORIGINATING IN THE REGION OF DENDRITES,
by P. D. Wall. 1 Dec 64, 18p. Contract DA-36-039-AMC-03200 (E) ,AF33 (615)-1747
Unclassified report

Availability: Published in Journal of Physiology, V180 P116-33 1965. Copies to DDC users only.

Descriptors: (*Nerve impulses, Nerve cells), Nerve fibers, Spinal cord, Stimulation, Nervous system, Physiology, Cats

Small extracellular action potentials can be recorded in the substantia gelatinosa. They are not produced by either terminals of afferent fibres or by the small cells of substantia gelatinosa. It is shown that there spikes have exactly the same qualitative properties as those evoked in the cell bodies of deeper cells. Continuous recordings can be made from the dendritic region to the cell body region of these cells. Spontaneous activity is only present in the cell body region but, when the receptive field of the cell is stimulated, impulses are initiated in the dendrites and are not conducted back into the dendrites from the cell body. It is tentatively concluded that the region from which impulses can be initiated extends up into the dendirtes as the intensity of bombardment and firing of the cell increases. The presence of multiple trigger zones and travelling impulses in dendrites would mean that the cell has far greater potentialities for the analysis and abstraction of patterns in its afferents than is the case for a cell with a singel trigger zone in the region of its axon hillock. (Author)

AD-624 395 Fld. 6/16, 6/1, 6/15
TORONTO UNIV (ONTARIO) DEPT OF PHYSIOLOGY
THE EFFECT OF GLUCAGON ON BLOOD SUGAR AND INORGANIC PHOSPHORUS LEVELS IN NORMOTHERMIC AND HYPOTHERMIC RATS,
by Anne L. Crawford, Margaret J. Henderson, Rosemary D. Hawkins, and R. E. Haist. 23 Dec 64, 10p.
Unclassified report

Availability: Published in Canadian Journal of Physiology and Pharmacology, V43 P601-10 1965. Copies to DDC users only.

Descriptors: (*Glucagon, Hyperglycemia), (*Body temperature, Glucagon), (*Hyperglycemia, Body temperature), (*Blood chemistry, Glucagon), Hypothermia, Phosphorus, Blood, Glucose, Urine, Excretion, Epinephrine, Tables, Rats

Injection of glucagon into normothermic rats led to hyperglycaemia, and a significant fall in blood inorganic phosphorus levels. In hypothermic rats (25C) the injection of glucagon did not produce hyperglycaemia but the reduction in blood inorganic phosphorus levels was still obtained. Following the administration of glucagon, an increase in the excretion of inorganic phosphorus in the urine was observed in both normothermic and hypothermic rats. The fall in blood inorganic phosphorus level was considered to be due, in part at least, to the effect of glucagon in increasing the excretion of phosphorus in the urine. (Author)

AD-624 409 Fld. 6/16, 6/5
OREGON UNIV PORTLAND MEDICAL SCHOOL
FURTHER STUDIES ON THE HUMAN ECCRINE SWEAT GLAND.
Annual progress rept. 1 Sep 64-1 Sep 65,
by Richard L. Dobson, Walter C. Lobitz, Jr., Donald C. Abele, and Gary W. Cage. 1965, 34p.
Contract DA-49-193-MD-2176

Unclassified report

Availability: Published in various reprints. Copies to DDC users only.

Descriptors: (*Sweat glands, Humans), Adaptation (Physiology), Perspiration, Secretion, Sodium, Electrolytes (Physiology), Membranes (Biology), Permeability, Absorption (Biological), Water, Obstruction (Physiology), Evaporation, Diseases, Histology, Cytology, Morphology (Biology), Glycogen, Etiology, Skin, Corticosteroid agents, Diuretics

Contents: Human eccrine sweat gland: structural and functional interrelationships; Miliaria; Effect of a corticosteroid and a diuretic on the structure of the eccrine sweat gland; Sodium secretion and reabsorption in the human eccrine sweat gland; The eccrine sweat gland.

AD-624 477 Fld. 6/16, 6/4
CFSTI Prices: HC $4.00 MF $0.75
AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OHIO SCHOOL OF ENGINEERING
PROPOSED COMPUTATIONS IN THE CEREBRAL CORTEX BASED ON FOURIER TRANSFORM AND SPATIAL FILTERING TECHNIQUES.
Master's thesis,
by George Donald Passmore. Aug 65, 101p.
Rept. no. ge/ee/65-18

Unclassified report

Descriptors: (*Cerebral cortex, Mathematical models), (*Bionics, Cerebral cortex), Integral transforms, Pattern recognition, Optics, Lasers, Computers, Nervous system, Physiology, Sensory perception, Anatomy, Programming (Computers)

The paper employs some recent findings in the field of optics to postulate the nature of the cortical calculation. To show this, a mathematical formulation of an optical transform is discussed. A laser is used to experimentally obtain this transform. The properties of the transform are then investigated. The optical theory is compared with a specified cortical connectivity to model a basic computational cell. An array of these cells are shown to duplicate a transform process similar to the optical transform process. The calculation performed by the array is then simulated on the IBM 7094 computer for various input patterns. (Author)

AD-624 647 Fld. 6/16, 20/11
CFSTI Prices: HC $3.00 MF $0.75
NEW HAMPSHIRE UNIV DURHAM DEPT OF MECHANICAL ENGINEERING
A PRELIMINARY INVESTIGATION OF A METHOD FOR DEFINING MECHANICAL PROPERTIES OF CELLS AND TISSUE.
Master's thesis,
by Ralph Waldo Weaver Jr.. Jun 65, 64p. Contract AF33 (608)-1256

Unclassified report

Descriptors: (*Aorta, Mechanical properties), Cells (Biology), Tissues (Biology), Rheology, Tissue culture cells, X-rays, Colloids, Creep, Elasticity, Stresses, Viscosity, Pathology, Cardiovascular diseases, Experimental data, Test equipment, Mathematical models, Pigeons

The purpose of the thesis was to investigate and select an optimum technical approach for obtaining the mechanical properties of aortic tissue. The following conclusions were made as a result of the preliminary investigation of the unit cell: (1) The passive cell state may be considered as a viscoelastic creep problem; (2) the Voigt model provides an experimental method of determining a value for an idealized retardation time, a normalized stress, and the cell's theoretical specific weight; (3) the parameters K, S, and gamma are influenced by the following factors: (a) The quantities appear to reflect a cellular response which is a function of the magnitude, duration, or both magnitude and duration of an applied disturbing force; (b) the accuracy of the particular values is influenced by the time difference in the sequential photographic data; (c) the cellular rate of deformation appears to be temperature sensitive. (Author)

AD-624 663 Fld. 6/16
CFSTI Prices: HC $2.00 MF $0.50
TEXAS A AND M UNIV COLLEGE STATION
BILATERAL REPRESENTATION OF THE HORIZONTAL SEMICIRCULAR CANALS IN THE INFERIOR VESTIBULAR NUCLEUS OF CATS.
Master's thesis,
by John Thomas La Croix. Aug 65, 42p. Contract AF33 (608)-1284

Unclassified report

Descriptors: (*Semicircular canals, Electrophysiology), (*Auditory nerve, Stimulation), Vestibular apparatus, Brain, Nerve cells, Nerve fibers, Nerve impulses, Anatomy, Physiology, Histology, Cats

The existence of bilateral representation was demonstrated in single units in the inferior vestibular nucleus of decerebrate, decerebellate cats by recording the spike potentials with tungsten microelectrodes. Recording electrodes one to two microns in diameter were stereotaxically placed in the inferior vestibular nucleus. Recordings were made from locations where the frequency of action potentials was affected by the direction of accelerator stimulation of the horizontal semicircular canals. The ipsilateral and contralateral eighth cranial nerves were stimulated individually by one second galvanic pulses. The individual spike potentials were amplified and recorded on moving film from the screen of a cathode ray oscilloscope. Response to electrical stimulation was demonstrated by changes in the impulse rate at the recording site. Responses were elicited by stimulation of the nerves of both sides in almost all observations. The effect of stimulation of the contralateral side was, however, usually lesser in degree than the effect in the ipsilateral side. Other effects of stimulation were also noted. The possibility that responses were due to current spread from the site of stimulation was eliminated by demonstrating the lack of response in the sectioned nerve. Electrode placements were determined histologically. (Author)

AD-624 739 Fld. 6/16
CFSTI Prices: HC $2.00 MF $0.50
HIROSHIMA UNIV (JAPAN) DEPT OF PHYSIOLOGY
MECHANISMS OF SMOOTH MUSCLE RELAXATION THROUGH THE ANODAL CURRENT STIMULATION.
Final rept. 30 Jul 64-29 Jul 65,
by Hiroshi Irisawa. 29 Jul 65, 32p. Contract DA-92-557-FEG-36882 Proj. 1C622401A097 Task 00 020FE
ARDG (FE) J-220

Unclassified report

Availability: Microfiche only after original copies exhausted.

Descriptors: (*Muscles, Relaxation (Physiology)), (*Electrophysiology, Muscles), Stimulation, Electric currents, Ions, Electrolytes (Physiology), Osmotic pressure, Polarization, Nerves, Nerve fibers, Contraction, Heart, Urinary system, Cats, Dogs, Crustacea, Electron microscopy, Japan

Further studies have been made on the mechanism of the smooth muscle relaxation through the anodal current stimulation. Major efforts have been concentrated in four items of research projects. The effect of (Ca++). on the action potential of the cat ureter were studied during exposure to Na (+)-free solution as well as to RingerKrebs solution. In the absense of Na+ action potential was not demonstrated at normal Ca (++) concentration, but when the external Ca (++) concentration was increased above 5 mM it recovered temporarily. The blood of elasmobranchs is isosmotic with sea water, but NaCl accounts for 50% of the osmotic solute and 38% of it is maintained by the concentrated urea molecules. Utilizing this special situation in elasmobranchs, the effect of hyper Na (+) was studied up to 200% of normal Ringer's solution with isosmotic condition. No depressant effect on transmembrane action potential was observed in hyper Na solution. By applying the suction electrode method, time course of both the depolarization and the repolarization in the in situ exposed right atrium occurred after QRS spikes in the normal condition. The region of the initial excitation was not become the initial focus of repolarization, and it is different from animal to animal. The electron microscopic structure of the nerve ending of myocardium of the mantis shrimp shows the simple and undifferentiated organizations. (Author)

AD-624 740 Fld. 6/16, 6/1
CFSTI Prices: HC $2.00 MF $0.50
NARA MEDICAL COLL KASHIHARA CITY (JAPAN) DEPT OF PHYSIOLOGY
STUDIES ON THE HEMOGLOBIN-OXYGEN EQUILIBRIUM.
Final rept., 18 Jun 64-17 Jun 65,
by Yasunori Enoki. 19 Jul 65, 35p. Rept. no. J-207
Contract DA-92-557-FEC-37427 Proj. 2N014501D71D

Unclassified report

See also AD-439 020.

Descriptors: (*Hemoglobin, Molecular structure), (*Oxygen, Hemoglobin), Biophysics, Spectroscopy, Chromatographic analysis, Electrophoresis, Oxidation, Erythrocytes, Humans, Dogs, Rats, Japan, Equilibrium

Interrelationship between structure and function in hemoglobin was investigated with special reference to the role played by the protein moiety in the oxygenation function. An abnormal hemoglobin showed enormous functional abnormalities: 1) a marked reduction in the oxygen affinity, 2) complete absence of Bohr effect and 3) almost complete lacking of heme-heme interaction. By analogy of Hb M sub osaka to Hb H (b sub 4) in their structure and function, it was argued that normal function of hemoglobins, as expressed by strong heme-heme interaction, moderate oxygen affinity and normal Bohr effect, requires the presence of and an interaction between the two kinds of polypeptide subunit furnished with the ability

of reversible oxygenation. Extent of 'hybridization' between human adult and canine hemoglobins is highly dependent upon degree of oxygenation of the hemoglobins. A non-linear relationship was found between the extent of 'hybridization' and that of oxygenation, which suggest that a non-straightforward alteration may occur in the quaternary structure of hemoglobin molecule upon the oxygen binding. Mutual ratio of the five hemoglobin fractions, was determined in five adult rats. No significant individual variation was observed for each of the five fractions in all the animals except the one in which one subcomponent was in a lowered level. (Author)

AD-624 757 Fld. 6/16
CFSTI Prices: HC $1.00 MF $0.50
PENNSYLVANIA UNIV PHILADELPHIA DEPT OF PHYSIOLOGY
VENTILATION OF PARTS OF THE LUNG WITH CHEMICALS AND GASES IN AQUEOUS SOLUTION.
Semi-annual progress rept. 1 Jun-30 Nov 65,
by Arthur B. DuBois. 30 Nov 65, 4p. Contract DA-18-108-AMC-143 (A)
Unclassified report

Descriptors: (*Lungs, Physiology), Tissue extracts, Surface properties, Voltage, Electrical properties, Surface tension, Cells (Biology), Pressure, Volume, Gases, Chemicals, Respiratory system, Implants, Hypoxia, Blood vessels, Capillaries, Blood volume

AD-624 782 Fld. 6/16
NAVAL SUBMARINE MEDICAL CENTER GROTON CONN MEDICAL RESEARCH LAB
BEKESY AUDIOMETRY AT 20 FREQUENCIES FROM 0.2 TO 6 KC/SEC,
by J. D. Harris. 18 Jun 64, 4p. Proj. MR005.14-1001 NAVMED MR005-14-1001-3-05
Unclassified report

Availability: Published in Journal of the Acoustical Society of America V36 N10 P1954-5 Oct 1964. Copies to DDC users only.

Descriptors: (*Audiometry, Thresholds (Physiology)), Hearing, Audiofrequency, Submarine personnel, Naval personnel

Absolute intensive thresholds are presented from 26 men yielding Bekesy audiograms at 20 frequencies. Results validate the practice of graphic interpolation between thresholds in octaye steps to predict mean thresholds at half-octave points. Thresholds are almost indistinguishable from those by conventional audiometry in a very similar population. Data are interpreted to confirm in general the practicability of using the proposed 1964 ISO reference-threshold level as the norm for young otoscopically negative adults. (Author)

AD-624 790 Fld. 6/16
CFSTI Prices: HC $2.00 MF $0.50
INSTITUTE FOR PERCEPTION RVO-TNO SOESTERBERG (NETHERLANDS)
CORTICAL CONTROL OF EYE MOVEMENTS AND VISUAL THRESHOLD.
Final rept., 1 Jun 64-1 Jun 65,
by Maarten A. Bouman. Oct 65, 45p. Contract DA-91-591-EUC-3346 Proj. 2J014501B74B
Unclassified report

Descriptors: (*Visual perception, Thresholds (Physiology)), Cerebral cortex, Eye, Motion, Vision, Nervous system, Physiology, Light, Intensity, Retina, Adaptation (Physiology), Electroencephalography, Probability, Netherlands

Experimental investigations were conducted on the increase in the threshold for visual perception which occurs just prior to, and during eye movements. To measure the visual threshold in the vicinity of eye movement an apparatus was constructed having alternately burning lights. Some time after switching, a flash of short duration of controlled intensity was presented which fell in the vicinity of the subject's eye movement. Eye movements were measured by reflection of light from the surface of the eye. The reflection data is fed to a 'pattern recognizer' which records the onset of eye movement. The subject records whether or not he saw the flash. The threshold for perception as a function of eye movement was measured. The equipment could present one or two light flashes to the subject. Each light source had a diameter of 7 minutes of arc, with an angular separation between the two lights up to several degrees. It was found that the detection of one light flash would facilitate the detection of the other light flash. For example, if the probability of detecting either light, separately, was 0.3, the probability of detecting both together was 0.2, rather than 0.09. This facilitation experiment was then repeated with a resting eye, with the following results, which hold for both the light adapted and the dark adapted eye: 1. It is most likely a retinal effect, which affects both rods and cones equally. 2. Outside the area of summation the distance between the two flashes is of minor importance. (Author)

AD-624 832 Fld. 6/16
CLEVITE CORP BEDFORD OHIO PIEZOELECTRIC DIV
PRESSOCEPTIVE AND CHEMOCEPTIVE AORTIC REFLEXES IN DECORTICATE AND IN DECEREBRATE CATS,
by G. Baccelli, M. Guazzi, A. Libretti, and A. Zanchetti. 5 Oct 64, 8p. Contract AF61 (052)-253 AFOSR 65-2242
Unclassified report

Availability: Published in American Journal of Physiology V208 N4 P708-14 Apr 1965. Copies to DDC users only.

Descriptors: (*Aorta, Reflexes), Autonomic nervous system, Electrophysiology, Nerves, Stimulation, Thresholds (Physiology), Nerve fibers, End organs, Chemoreceptors, Blood pressure, Blood circulation, Respiration, Behavior, Hypertension, Hypotension, Hyperventilation, Cardiovascular system, Inhibition, Cats, Italy

Graded electrical stimulation of three different components of the aortic nerve has been performed in decorticate cats, and later repeated after intercollicular decerebration. Threshold stimuli, involving only the largest fibers probably originating from pressoceptors, slightly decrease blood pressure and respiration both in quiet decorticate and in decerebrate cats. However, in decorticate animals during 'spontaneous' fits of sham rage, inhibition of all somatic and visceral components of rage behavior is observed. When aortic nerve stimuli also involve intermediate-threshold fibers presumably of chemoceptive origin, excitation of rage behavior accompanied by strong hypertension and hyperventilation is seen in decorticate preparations, while after decerebration reflex hyperpnea is accompanied by hypotension or by no consistent pressor change. Stronger stimuli activating smaller fibers of probable pressoceptive origin still have conspicuous excitatory effects in decorticate animals, as shown by appearance of rage activity and pressor reactions, whereas after decerebration prominent hypotension with hyperpnea is observed. The predominance of excitatory cardiovascular responses to aortic nerve stimuli in decorticate animals, and of inhibitory reactions after decerebration, is discussed. (Author)

AD-624 415 See Fld. 6/5

AD-624 470 See Fld. 14/5

AD-624 480 See Fld. 11/9

AD-624 482 See Fld. 11/9

AD-624 738 See Fld. 19/4

AD-624 848 See Fld. 5/10

6/17. PROTECTIVE EQUIPMENT

AD-624 633 Fld. 6/17, 6/19
CFSTI Prices: HC $1.00 MF $0.50
AIR TECHNICAL SERVICE COMMAND WRIGHT-PATTERSON AFB OHIO AERO MEDICAL LAB
OXYGEN REQUIREMENTS WITH CONSTANT FLOW EQUIPMENT.
Memo. rept.
30 Dec 44, 13p. Rept. no. tseal-696-42H
Unclassified report

Availability: Microfiche only after original copies exhausted.

Descriptors: (*Oxygen consumption, High altitude), (*Oxygen masks, Aviation medicine), Oximeters, Gas flow, Oxygen, Lungs, Respiration, Aviation personnel, Transport planes

The flow of oxygen which is needed to maintain 95 per cent arterial saturation in an individual using the A-8B oxygen mask has been determined for three degrees of physical activity in three individuals at the altitudes of 10,000, 15,000, 20,000, 25,000, 30,000 and 35,000 feet. The increase in oxygen requirements with altitude and with physical activity followed a certain regularity; tbese regularities have been formulated. (Author)

AD-624 634 Fld. 6/17, 6/19
CFSTI Prices: HC $1.00 MF $0.50
AIR TECHNICAL SERVICE COMMAND WRIGHT-PATTERSON AFB OHIO AERO MEDICAL LAB
EFFECT OF RESPIRATORY DEAD SPACE OF OXYGEN EQUIPMENT UPON OXYGEN ECONOMY
Memo rept.
16 Dec 43, 10p. Rept. no. eng-49-696-7D
Unclassified report

Availability: Microfiche only after original copies exhausted.

Descriptors: (*Oxygen masks, Respiration), Carbon dioxide, Oxygen, Aviation medicine, Graphics

6/18. RADIOBIOLOGY

AD-624 485 Fld. 6/18
CFSTI Prices: HC $1.00 MF $0.50
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF
HOMOGRAFT RESPONSE AND HEMAGGLUTININ PRODUCTION BY SENSITIZED THYMECTOMIZED IRRADIATED ADULT MICE,
by Marvin L. Tyan, and Leonard J. Cole. 13 Oct 65, 21p. Rept. no. usnrdl-TR-920
Proj. MR005.08-1200 Task MR005.08-1200-2
Unclassified report

Descriptors: (*Radiation effects, Transplantation), (*Thymus, Radiation effects), (*Antigen-antibody reactions, Thymus), (*Whole-body irradiation, Immunity), Excision, Lethal dosage, X rays, Spleen, Skin, Agglutinins, Antigens + antibodies, Rats

Thymectomized and nonoperated male B6D2F1 mice were sensitized by the following means: (1) an allogeneic (A/HeJ) skin graft; (2) three sc injections of A/HeJ spleen cells in Freund's complete adjuvant; and (3) three ip injections of A/HeJ spleen cells. One week after the last injection, thymectomized and nonoperated mice from each group received 870 rad whole-body X radiation. The mice were grafted with A/HeJ and rat skin 102, 143, 184, 205 and 225 days after irradiation. Sera were obtained frequently for anti-A/HeJ and anti-rat hemagglutinins. The results indicated that

although both hemagglutinin production and the homograft response were initially greatly impaired by thymectomy and lethal irradiation, repeated antigenic challenge resulted in return of the specific homograft response to near normal reactivity while antibody production became progressively more impaired. The results suggested that (1) antibody production and homograft sensitivity are manifestations of immunologic responses by associated by distinct cell populations, (2) antibody production is more thymus-dependent than is the homograft response and (3) the method of sensitization employed determines both the relative and absolute number of 'sensitized cells' produced within each cell population. (Author)

AD-624 516 See Fld. 18/4

6/19. STRESS PHYSIOLOGY

AD-624 414 Fld. 6/19
CFSTI Prices: HC $1.00 MF $0.50
UNIVERSITY OF SOUTHERN CALIFORNIA LOS ANGELES SCHOOL OF MEDICINE
THE EFFECTS OF ELASTICITY UPON THE PRESSURES WITHIN A LIQUID FILLED TUBE WHEN SUBJECTED TO FLUCTUATING FORCES,
by A. M. O. Smith, and C. F. Lombard. 25 Jan 51, 21p. Contract N6ori-7701 Proj. NR-161-014

Unclassified report

Descriptors: (*Stress (Physiology), Force (Mechanics)), (*Elasticity, Pressure), Tissues (Biology), Blood vessels, Analysis, Damping, Mathematical analysis

A study was made of the effects of fluctuating and short duration forces upon both animals and human beings, using a compound centrifuge. The analysis is one on a simple constant area tube.

AD-624 626 Fld. 6/19
CFSTI Prices: HC $1.00 MF $0.50
AEROMEDICAL RESEARCH LAB (6571ST) HOLLOMAN AFB N MEX
MAXIMUM VOLUNTARY VENTILATION AFTER + G SUB X IMPACT IN HUMANS.
Interim rept. for Feb 65,
by Peter G. Hanson. Nov 65, 18p. Rept. no. arl-TR-65-22

Unclassified report

Descriptors: (*Acceleration tolerance, Respiration), (*Respiration, Stress (Physiology)), Lungs, Blood circulation, Pathology, Humans, Anxiety, Stress (Psychology)

Eightenn volunteer male subjects were exposed to 20 + G sub x impact on the Daisy Decelerator. Measurements of maximum voluntary ventilation (MVV) obtained 10 minutes prior to, immediately after and 20 minutes after impact were compared with previously determined baseline MVV values. The results indicate that MVV performance is elevated immediately after impact. It is suggested that this response is related to subject anxiety with accompanying sympathicotonia. (Author)

AD-624 635 Fld. 6/19, 6/5
CFSTI Prices: HC $2.00 MF $0.50
AIR TECHNICAL SERVICE COMMAND WRIGHT-PATTERSON AFB OHIO AERO MEDICAL LAB
THE CARDIO-RESPIRATORY EVENTS IN FATAL ANOXIA.
Memo. rept.
5 Oct 45, 35p. Rept. no. tseal-696-79B

Unclassified report

Descriptors: (*Anoxia, Aviation medicine), (*Respiratory system, Anoxia), (*Cardiovascular system, Anoxia), Respiration, Oxygen consumption, High altitude, Nitrogen

The reactions to three types of anoxia were scrutinized: (1) anoxia caused by breathing nitrogen gas, (2) anoxia caused by breathing mixtures of gases low in oxygen and high in nitrogen, and (3) anoxia caused by exposure to reduced atmospheric pressures. In order to obtain some understanding of species variations in these reactions, two species - dog and guinea-pig-have been examined. The data collected on the guinea-pig paralleling the data reported here, is the subject of another report. (Author)

AD-624 753 Fld. 6/19, 13/10
CFSTI Prices: HC $1.00 MF $0.50
NAVAL SUBMARINE MEDICAL CENTER GROTON CONN
AUDITORY FATIGUE UNDERWATER AT 1900 CYCLES PER SECOND.
Memo. rept.,
by Paul F. Smith. 2 Jul 65, 5p. Rept. no. 65-9
Proj. MR005.14-1200 NAVMED MR004-14-1200-0

Unclassified report

Descriptors: (*Fatigue (Physiology), Underwater sound), (*Underwater sound, Fatigue (Physiology)), Audiofrequency, Underwater sound signals, Diving, Underwater clothing, Sonar equipment, Transducers, Thresholds (Physiology)

The objective of the research was to determine whether or not divers may safely be exposed to intense underwater signals at 1900 cycles per second. It was found that divers wearing standard wet suits with hoods can safely enter the water in the presence of signals of 1900 cycles per second at signal level at least up to 169 decibels re .0002 microbar (95 db re 1 microbar) and remain at least 30 minutes, under conditions of pulse length and duty cycle similar to those used in this study. This information will eventually be useful in establishing safe working distances for Navy divers from sonar transducers transmitting at 1900 cycles per second. More intense levels would be necessary to establish a Damage Risk Criterion. (Author)

AD-624 766 Fld. 6/19, 13/10
CFSTI Prices: HC $1.00 MF $0.50
NAVAL SUBMARINE MEDICAL CENTER GROTON CONN
NOISE SURVEY OF ENGINE ROOMS OF U.S.S. TRINGA.
Memorandum rept.,
by J. Donald Harris, and N. S. R. Naumoff. 25 May 65, 6p. Rept. no. mr-65-8
NAVMED MR005-14-1200-2-03

Unclassified report

Descriptors: (*Submarines, Noise), (*Noise, Submarine engines), Military medicine, Submarine personnel, Tolerances (Physiology), Thresholds (Physiology)

AD-624 783 Fld. 6/19, 5/9, 5/10
CFSTI Prices: HC $1.00 MF $0.50
NAVAL SUBMARINE MEDICAL CENTER GROTON CONN
SELECTION OF MEN FOR HAZARDOUS DUTY FROM INDICES OF INDIVIDUAL DIFFERENCES IN AUTONOMIC NERVOUS SYSTEM REACTIVITY.
Memo rept.,
by Benjamin B. Weybrew. 6 Feb 65, 17p. Rept. no. 65-1
Proj. MR005.14-2100 NAVMED MR005-14-2100-1-13

Unclassified report

Descriptors: (*Autonomic nervous system, Stress (Physiology)), (*Stress (Physiology), Hazards), (*Stress (Psychology), Psychometrics), Naval personnel, Selection, Submarine personnel

The purpose of the report is to integrate the results of a series of studies aimed at assessing the validity of peripheral autonomic indices (respiration rate, tremor, palmar conductance etc.) for predicting individual differences in adjustment to a stressful environment. Based largely upon palmar electrodermal indices, autonomic displacement and recoverability to laboratoryinduced stress has moderate to high predictive validity with respect to submariner adjustment ratings. Functional autonomic differences may therefore be indicative of underlying emotional traits which in turn are related to differences in adjustment to certain hazardous environments. The data presented in this paper suggest that selected peripheral indices of autonomic function are usefully valid measures of an individual's ability to adapt to the stresses of certain hazardous environments. The possibilities of these measures as selection techniques are indicated. (Author)

AD-624 794 Fld. 6/19, 6/1
ARMY RESEARCH INST OF ENVIRONMENTAL MEDICINE NATICK MASS
THE EFFECT OF ACUTE AND CHRONIC COLD EXPOSURE ON TISSUE LIPIDS IN THE RAT,
by D. G. Therriault, and R. H. Poe. 13 Nov 64, 9p.

Unclassified report

Availability: Published in Canadian Journal of Biochemistry V43 P1427-35 1965. Copies to DDC users only.

Descriptors: (*Lipids, Acclimatization), (*Muscles, Lipids), (*Stress (Physiology), Lipids), Tissues (Biology), Cold weather tests, Exposure, Liver, Phospholipids, Fatty acids, Rats

The liver and gastrocnemius muscles from rats undergoing acute and chronic cold exposure to 5C were totally excised after an in situ perfusion with isotonic saline. Total lipid was extracted from the tissue and the lipid-classes separated by countercurrent distribution. There was no difference between the groups in the amount of phospholipid present in either liver or muscle. However, the neutral lipids of both tissues were decreased in the acclimated group. Though acute exposure caused a decrease in the neutral lipid levels of muscle, the liver levels remained unchanged. Only the free fatty acid levels in liver were affected by acute exposure, and these increased. The decrease in neutral lipid of muscle in the acutely exposed group suggests that there is an immediately available source of lipid in muscle in response to the stress of cold exposure. (Author)

AD-624 795 Fld. 6/19, 6/1
ARMY RESEARCH INST OF ENVIRONMENTAL MEDICINE NATICK MASS
METABOLISM OF CARNITINE IN COLDACCLIMATED RATS,
by D. G. Therriault, and Ma A. Mehlman. 13 Nov 64, 7p.

Unclassified report

Availability: Published in Canadian Journal of Biochemistry V43 P1437-43 1965. Copies to DDC users only.

Descriptors: (*Alkaloids, Metabolism), (*Muscles, Alkaloids), (*Acclimatization, Alkaloids), Cold weather tests, Exposure, Mitochondria, Half life, Fatty acids, Chromatographic analysis, Stress (Physiology), Rats

The body pool, half-life, and turnover time of carnitine in rats maintained at 25C and in rats exposed to 5C for a period of 6 weeks were measured. The level of free and lipid-bound carnitine in striated muscle of these animals was also determined. Results show that the body pool of carnitine is eight times greater in coldacclimated rats than in rats maintained at 25C. On the other hand, the half-life and turnover time of carnitine in cold-acclimated rats is only one-half of that of rats kept at 25C. Analysis of striated muscle showed a parallel increase of carnitine in cold-acclimated rats. This increase in carnitine was accompanied by a corresponding increase in acylcarnitine. (Author)

AD-624 796 Fld. 6/19
ARMY RESEARCH INST OF ENVIRONMENTAL MEDICINE NATICK MASS
TISSUE LACTIC DEHYDROGENASE ISOZYMES: VARIATION IN RATS DURING PROLONGED COLD EXPOSURE,
by William F. Blatt, John Walker, and Milton Mager. 24 Mar 65, 5p.
Unclassified report

Availability: Published in American Journal of Physiology V209 N4 P785-9 Oct 1965. Copies to DDC users only.

Descriptors: (*Oxidoreductases, Acclimatization), (*Acclimatization, Oxidoreductases), Tissues (Biology), Enzymes, Metabolism, Exposure, Cold weather tests, Heart, Liver, Kidneys, Muscle, Blood plasma, Erythrocytes, Adaptation (Physiology), Stress (Physiology), Genetics

Total lactic dehydrogenase (LDH) activity as well as the relative distribution of heart- and muscle-type subunits was assayed in tissues of rats chronically exposed to cold (6 weeks, 5 C). A depression of LDH activity was noted in heart and liver following 1 week at 5 C; restoration to normal levels occurred in weeks 2, 3, and 4 which persisted for heart tissue; liver values fell below normal limits for the final 2 weeks of study. No significant changes in total activity or in subunit distribution were seen in kidney, muscle, plasma, or red blood cells. A progressive increase in the ratio of heart to muscle type was noted in heart muscle with a final level almost twice that of the control value. The changes in total activity as well as the relative distribution of the subunits may be related to substrate availability, tissue oxygen supply, or hormone action; the study did not permit assessment of any of these parameters as the causative factors. The adaptive change observed in heart muscle affords a possible example of the modification of genic expression by environmental stress. (Author)

AD-624 336 See Fld. 5/10

AD-624 342 See Fld. 6/11

AD-624 456 See Fld. 6/3

AD-624 473 See Fld. 14/2

AD-624 487 See Fld. 6/2

AD-624 526 See Fld. 6/15

AD-624 546 See Fld. 14/2

AD-624 633 See Fld. 6/17

AD-624 634 See Fld. 6/17

AD-624 636 See Fld. 14/2

AD-624 754 See Fld. 6/11

6/20. TOXICOLOGY

AD-624 456 See Fld. 6/3

AD-624 473 See Fld. 14/2

AD-624 552 See Fld. 6/15

7/1. CHEMICAL ENGINEERING

AD-624 296 See Fld. 7/2

AD-624 788 See Fld. 18/8

7/2. INORGANIC CHEMISTRY

AD-624 296 Fld. 7/2, 14/2, 7/1
CFSTI Prices: HC $1.00 MF $0.50

NAVAL RESEARCH LAB WASHINGTON D C
A METHOD FOR THE DETERMINATION OF STRONGACID VAPORS IN THE PPM RANGE.
Final rept.,
by D. D. Williams, E. T. Johnson, and R. R. Miller. 14 Oct 65. 10p. Rept. no. nrl-6332
Proj. SF-013-08-03 Task 4092 ,4093
Unclassified report

Descriptors: (*Acids, Colorimetric analysis), (*Vapors, Acids), (*Gas analysis, Acids), (*Corrosive gases, Gas analysis), Chemical indicators, Samplers, Sensitivity, Air pollution, Feasibility studies

A nondiscriminating method for the quantitative detection of strong-acid vapors has been developed. The colors produced by passing known volumes of suspect air through disks of filter paper impregnated with an acid-sensitive reagent are compared with the colors on a calibrated reference chart. Reproducible sampling and analysis are accomplished in less than one minute with one to five strokes (100-500 cc) of a bellows-type hand pump. The range of the method as presently calibrated is 0.2 to 40.0 ppm by volume as monobasic gas. (Author)

AD-624 324 Fld. 7/2, 7/4
ROYAL INST OF TECH STOCKHOLM (SWEDEN) DEPT OF INORGANIC CHEMISTRY
STUDIES ON THE HYDROLYSIS OF METAL IONS. PART 50. THE HYDROLYSIS OF THE YTTRIUM (III) ION, Y (3+),
by George Biedermann, and Liberato Ciavatta. 1964, 30p. Contract AF-EOAR-63-8 AFOSR 65-1648
Unclassified report

See also AD-621 283.

Availability: Published in Arkiv For Kemi V22 N22 P253-79 1964. Copies to DDC users only.

Descriptors: (*Yttrium, Hydrolysis), (*Hydrolysis, Electrochemistry), Chemical equilibrium, Metals, Ions, Perchlorates, Oxides, Electrolysis, Chemical precipitation Volumetric analysis, pH, Solutions, Hydroxides, Sweden

The hydrolysis equilibria of the Y (3+) ion were studied at 25C by measuring with a quinhydrone or a glass halfcell the hydrogen ion concentration of a series of yttrium perchlorate solutions. The Y (III) of the test solutions, which were made to contain 3 M ClO4 (-) by adding LiClO4, ranged from 0.025 to 1 M. Solutions having an appreciable concentration of hydrolysis products were prepared by two methods: (1) saturating a slightly acidic yttrium perchlorate solution with hydrous yttrium oxide, (2) generating OH (-) ions by constant current electrolysis in an initially unhydrolyzed solution and measuring with a coulometer the amount of electricity used. The data obtained in solutions prepared by methods 1 and 2 were found to agree to within the uncertainty of the emf measurements. It can be deduced on the basis of the equilibrium constants obtained that the predominating hydrolysis products are the species Y2 (OH)2 (4+) and YOH (2+), whereas Y3 (OH)5 (4+) becomes important only when the point of precipitation is approached. Experimental problems arising when coulometry is employed to study ionic equilibria are discussed in some details. A volumetric method for the analysis of yttrium solutions is described. (Author)

AD-624 326 Fld. 7/2, 7/3
KANSAS UNIV LAWRENCE CHEMICAL LAB
THE PREPARATION AND INFRARED EXAMINATION OF THE 2-,3-, AND 4-CYANOPYRIDINE COMPLEXES OF COPPER (I), SILVER (I), AND GOLD (I) PERCHLORATES,
by Floyd Farha,Jr., and Reynold T. Iwamoto. 13 Jan 65, 8p. Contract AF-AFOSR-220-63 AFOSR 65-1656
Unclassified report

Availability: Published in Inorganic Chemistry, V4 P844-8 Jun 1965. Copies to DDC users only.

Descriptors: (*Complex compounds, Synthesis (Chemistry)), (*Silver compounds, Complex compounds), (*Gold compounds, Complex compounds), (*Copper compounds, Complex compounds), (*Nitriles, Spectra (Infrared)), (*Pyridines, Spectra (Infrared)), Perchlorates, Ions, Chemical bonds, Dipole moments, Resonance, Stereochemistry

The preparation of the bis 2-, 3-, and 4-cyanopyridine complexes of copper (I), silver (I), and gold (I) perchlorates and the tris 3-cyanopyridine complex of silver (I) perchlorate is described. Because both the nitrile group and the pyridine group in the cyanopyridine are capable of coordinating strongly with these ions, the infrared spectra of the complexes were examined to determine the coordination site of the metal ions. In 3- and 4cyanopyridine, the metal ions are bound to the pyridine nitrogen, and in 2-cyanopyridine they are bound to the nitrile nitrogen. (Author)

AD-624 332 Fld. 7/2, 7/3
TEXAS TECHNOLOGICAL COLL LUBBOCK DEPT OF CHEMISTRY
THE THERMAL DISSOCIATION OF SOME BIS AND TETRAKIS (PYRIDINE) METAL COMPLEXES,
by Wesley W. Wendlandt, and S. Iftikhar Ali. 22 Jul 64, 11p. Contract AF AFOSR-23-63 Proj. AF-9762 Task 976203
AFOSR 65-1650
Unclassified report

Availability: Published in Zeitschrift fur Anorganische und Allgemeine Chemie, V337 N1|2 P6-13 1965. Copies to DDC users only.

Descriptors: (*Complex compounds, Pyrolysis), (*Pyridines, Complex compounds), Copper compounds, Nickel compounds, Manganese compounds, Cadmium compounds, Zinc compounds, Cobalt compounds, Thiocyanates, Chlorine, Bromine, Iodine, Dissociation, Thermogravimetric analysis, Differential thermal analysis

The thermal dissociation of 16 pyridine complexes of the general formulas, M (py)4X2 and M (py)2X2, where M is Cu, Ni, Mn, Cd, Zn, and Co and X is SCN, Cl, Br, I and 1/2 C2O4, was studied by thermogravimetry and differential thermal analysis. The thermal transitions involved were mainly the depyridination reaction to lower pyridine content complexes. Such reactions as tetrak (pyridine) to bis (pyridine) and bis (pyridine) to mono (pyridine) complexes were observed. The deiridination reactions for the complexes are discussed in detail. (Author)

AD-624 348 Fld. 7/2, 7/4
WALTER REED ARMY INST OF RESEARCH WASHINGTON D C DIV OF BIOCHEMISTRY
COULOMETRIC GENERATION OF MOLYBDENUM (V),
by Fredric J. Feldman, and Gary D. Christian. 1 Dec 64, 8p.
Unclassified report

Availability: Published in Analytica Chemica Acta V33 P266-72 1965. Copies to DDC users only.

Descriptors: (*Molybdenum, Electrochemistry), (*Volumetric analysis, Molybdenum), Oxidationreduction reactions, Cathodes (Electrolytic cells), Platinum, Chromium, Chemical analysis

Molybdenum (V) was generated at a platinum cathode from 0.7 M molybdenum (VI) in 4 M sulfuric acid. A current efficiency of 99.9% was attained. A limiting current density of 0.05 mA/sq cm/mM

was found. The formal potential of the Mo (VI)-Mo (V) couple in 4M sulfuric acid was determined to be ca. 0.55 V vs. N.H.E. Chromium (VI) solutions were titrated over a wide range of sample size and generating current. Amperometric titration curves were interpreted from current-voltage curves. Titrations could be performed in the presence of oxygen at the l micro Eq. level. The effect of nitrate, perchlorate, orthophosphate, and chloride ions on the titration was determined. (Author)

AD-624 372 Fld. 7/2
NEWCASTLE-UPON-TYNE UNIV (ENGLAND) DEPT OF INORGANIC CHEMISTRY
HALOGEN DERIVATIVES OF CO-ORDINATED GALLIUM HYDRIDE,
by N. N. Greenwood, and A. Storr. 25 Jul 64, 8p. Contract AF-EOAR-62-27 AFOSR 65-1645
Unclassified report

Availability: Published in Journal of the Chemical Society V620 P3426-33 May 1965. Copies to DDC users only.

Descriptors: (*Complex compounds, Gallium compounds), (*Gallium compounds, Hydrides), (*Halogen compounds, Complex compounds), Amines, Synthesis (Chemistry), Spectra (Infrared), Nuclear magnetic resonance, Chemical properties, Borohydrides, Chlorides, Bromides, Iodides, Great Britain

The compounds, Me3NGaH3-nXn and Me3NGaD3-nXn (where n = 0, 1, 2, or 3 and X = Cl, Br, or I) were prepared and their infrared spectra recorded in benzene solution in the range 200--4000/cm. These spectra show several interesting features that are related to the substitution of hydrogen by halogen. The methyl-proton nuclear magnetic resonance spectra of these compounds in benzene solution were also recorded. The monosubstituted halogenogallanes, Me3NGaH2X, are white, slightly volatile solids, which can be purified by vacuum sublimation. The disubstituted halogenogallanes, Me3NGaHX2, and the fully halogenated compounds, Me3NGaX3, are all involatile white solids. Displacement of trimethylamine from the adduct Me3NGaH2Cl by boron trifluoride resulted in the liberation of unco-ordinated GaH2Cl which subsequently decomposed at low temperatures even in solution. An attempt to prepare the borohydride derivative, Me3NGaH2 (BH4), led to decomposition to gallium metal and hydrogen. (Author)

AD-624 386 Fld. 7/2, 7/3
CALIFORNIA UNIV RIVERSIDE DEPT OF CHEMISTRY
REACTION OF B10H10 (-2) WITH ARYLDIAZONIUM SALTS,
by M. Frederick Hawthorne, and Fredric P. Olsen. 26 Jan 65, 7p. Contract DA-ARO (D)-31-124-G547 AROD 3763:14
Unclassified report

Availability: Published in Journal of the American Chemical Society, V87 N11 P2366-72 1965. Copies to DDC users only.

Descriptors: (*Decaboranes, Chemical reactions), (*Organic nitrogen compounds, Chemical reactions), Salts, Benzenes, Chemical equilibrium, Acid-base reactions, Substitution reactions, Spectra (Visible + ultraviolet), Band spectrum, Dyes, Reaction kinetics, Organoboranes, Explosive materials

A coupling reaction between salts of B10H10 (-2) and salts of aryldiazonium ions in acetonitrile produced a series of apically substituted B10H10 (-2) derivatives related to the azobenzenes. Nitrogen-protonated conjugate acids of these materials were also isolated. The pKa values associated with the acid-base equilibrium were determined for eight pairs of compounds and are a linear function of Hammett's sigma-values with a rhovalue of 1.7. The effects of substituent and solvent on the charge-transfer band found in the ultraviolet visible spectra of the dyes and their conjugate acids were investigated. The new dyes were cleaved to apically substituted B10H9NH3 (-) and RC6H4NH2 using a variety of reducing agents. B10H9NH3 (-) may be coupled with a second mole of diazonium ion to give an azo dye and its conjugate acid carrying on -NH3 (+) group on the B10 polyhedron. Reduction of this latter material afforded 1,10- (NH3)2B10H8. The p-methoxybenzenediazonium ion did not kinetically distinguish between B10H10 (-2) and B10D10 (-2) in a competition experiment. In water, B10H10 (-2) and diazonium ions combine to form insoluble and explosive salts. (Author)

AD-624 387 Fld. 7/2, 7/3
CALIFORNIA UNIV RIVERSIDE DEPT OF CHEMISTRY
B-PHENYL-1,2- DICARBA CLOVODODECARBORANE (12) FROM B9C2H11 (-2) THROUGH AN INSERTION REACTION,
by M. Frederick Hawthorne, and Patrick A. Wegner. 30 Jun 65, 1p. Contract DA-ARO (D)-31-124-G547 AROD 3763:13
Unclassified report

Availability: Published in Journal of the Americal Chemical Society, V87 P4392 1965. Copies to DDC users only.

Descriptors: (*Organoboranes, Synthesis (Chemistry)), Aromatic compounds, Nuclear magnetic resonance, Molecular structure, Spectra (Infrared), Chemical reactions

A report is given of the first derivative of 1,2-dicarbaclovododecaborane (12) which bears an aryl substituent on boron and the novel insertion reaction which led to the formation of this derivative.

AD-624 388 Fld. 7/2, 7/3
CALIFORNIA UNIV RIVERSIDE DEPT OF CHEMISTRY
CARBAMETALLIC BORON HYDRIDE DERIVATIVES. III. THE PI-C5H5FE (PI-B9C2H11)SYSTEM,
by M. Frederick Hawthorne, and Richard L. Pilling. 20 May 65, 2p. Contract DA-ARO (D)-31-124-G547 AROD 3763:12
Unclassified report

See also AD-624 390.

Availability: Published in Journal of the American Chemical Society, V87 P3987-8 1965. Copies to DDC users only.

Descriptors: (*Borohydrides, Metalorganic compounds), (*Metalorganic compounds, Borohydrides), Organoboranes, Iron, Molecular structure, Ferrocenes

The preparation and properties of pi-C5H5Fe (pi-B9C2H11) are reported containing Fe (II) and Fe (III) which appears to be analogous to the ferrocene-ferricinium ion system.

AD-624 389 Fld. 7/2, 7/3
CALIFORNIA UNIV RIVERSIDE DEPT OF CHEMISTRY
CARBAMETALLIC BORON HYDRIDE DERIVATIVES. II. APPARENT ANALOGS OF PI-C5H5MN (CO)3 AND PI-C5H5RE (CO)3,
by M. Frederick Hawthorne, and Timothy D. Andrews. 18 Mar 65, 1p. Contract DA-ARO (D)-31-124-G547 AROD 3763:11
Unclassified report

Availability: Published in Journal of the American Chemical Society, V87 P2496 1965. Copies to DDC users only.

Descriptors: (*Borohydrides, Metalorganic compounds), (*Metalorganic compounds, Borohydrides), (*Cyclopentenes, Borohydrides), Rhenium compounds, Manganese compounds, Ions, Molecular structure, Organoboranes, Dienes

The synthesis of stable anions is reported which appear to be analogous to pi-cyclopentadienyl manganese tricarbonyl and the corresponding rhenium compound. A structure is proposed that is consistent with the formulation of these anions as (B9C2H11) Mn (CO)3 (-) (I) and (B9C2H11)Re (CO)3 (-) (II). Both I and II were prepared from the corresponding bromometal pentacarbonyl and the sodium salt of B9C2H11C-2 in tetrahydrofuran solution at the reflux temperature. In both systems sodium bromide (90% yield) precipitated immediately after mixing the reagents, and 2 moles of CO was evolved during a 2-hr. period. These results suggest the initial formation of unstable (B9C2H11)Mn (CO)5-and (B9C2H11)Re (CO)5-intermediates.

AD-624 390 Fld. 7/2, 7/3
CALIFORNIA UNIV RIVERSIDE DEPT OF CHEMISTRY
CARBAMETALLIC BORON HYDRIDE DERIVATIVES. I. APPARENT ANALOGS OF FERROCENE AND FERRICINIUM ION,
by M. Frederick Hawthorne, Donald C. Young, and Patrick A. Wegner. 25 Feb 65, 1p. Contract DA-ARO (D)-31-124-G547 AROD 3763:10
Unclassified report

Availability: Published in Journal of the American Chemical Society, V87 N8 Apr 20 1965. Copies to DDC users only.

Descriptors: (*Borohydrides, Metalorganic compounds), (*Metalorganic compounds, Borohydrides), (*Ferrocenes, Borohydrides), Organoboranes, Ions, Iron, Molecular structure, Carbon, Atoms, Chemical bonds

The synthesis of very stable ionic species is reported which exhibit many of the properties of pi-bonded organometallic compounds and which may contain a single Fe (II-III) simultaneously bonded to the open faces of two B9C2H11 (-2) icosahedral fragments. Chemical evidence suggests that each B9C2H11 (-2) unit contributes six electrons for bonding to Fe (+2 in Fe (B9C2H11)2 (-2) and the two B9C2H11 (-2) units complete the krypton shell about iron. The novel 'sandwich' structure which would allow a single iron atom to complete two carborane icosahedra cannot be ruled out with the evidence at hand.

AD-624 391 Fld. 7/2
CALIFORNIA UNIV RIVERSIDE DEPT OF CHEMISTRY
THE PREPARATION AND REARRANGEMENT OF THE THREE ISOMERIC B20H18 (-4)IONS,
by M. Frederick Hawthorne, Richard L. Pilling, and Peter F. Stokley. 12 Nov 64, 8p. Contract DA-ARO (D)-31-124-G547 AROD 3763:15
Unclassified report

Availability: Published in Journal of the American Chemical Society, V87 N9 P1893-9 May 5 1965 Copies to DDC users only.

Descriptors: (*Borohydrides, Ions), (*Molecular structure, Borohydrides), Molecular isomerism, Cerium compounds, Oxidation-reduction reactions, Sodium, Ammonia, Liquefied gases, Catalysis, Acids

The ceric ion oxidation of B10H10 (-2) produced B20H18 (-2) and a B20H19 (-3) ion. Sodium in liquid ammonia reduced B20H18 (-2) to a B20H18 (-4) ion having an equatorial-equatorial two-center linkage between polyhedra. Subsequent acid-catalyzed rearrangement of this B20H18 (-4) isomer produced two other isomers of B20H18 (-4) which were characterized by apicalequatorial and apical-apical two-center linkages, respectively. A mechanism for these rearrangement reactions is proposed which involves B20H19 (-3) intermediates. Two B20H19 (-3) ions were isolated.

AD-624 402 Fld. 7/2, 7/4
MELLON INST PITTSBURGH PA
SF4 AND SOF2: INFRARED EVIDENCE FOR DIMER FORMATION AT LOW TEMPERATURES,
by R. L. Redington, and C. V. Berney. 12 May 65, 7p. Contract DA-31-124-ARO (D)-39 Grant, DA-ARO(D)-31-124-283 AROD 5272:1
Unclassified report

Availability: Published in the Journal of Chemical Physics V43 N6 P2027-41 Sep 15 1965. Copies to DDC users only.

Descriptors: (*Sulfur compounds, Fluorides), (*Fluorides, Chemical reactions), (*Infrared spectroscopy, Fluorides), Oxyfluorides, Molecular association, Polymerization, Stability, Chemical bonds, Exchange reactions, Heat of activation, Low-temperature research, Solidified gases, Argon

The infrared spectrum of SF4 trapped in an argon matrix at approx. 4K shows characteristic changes when the sample is warmed to allow diffusion and recooled. These changes are discussed in terms of association of the SF4 molecules, and their simplicity and stability suggest a simple model for the dimer and more highly associated species. Weak bonding appears to exist between the pair of equatorial F atoms on one SF4 molecule and the sulfur lone pair of electrons on an adjacent SF4 molecule. The spectrum of SOF2, present as an impurity, shows changes suggestive of the formation of an SF4-SOF2 complex. The observations, together with the NMR data of Muetterties and Phillips indicate that the mechanism for the rapid exchange of axial and equatorial fluorines in liquid SF4 at room temperature is not intermolecular. A low barrier for the inversion of isolated SF4 is also ruled out by the apparent absence of inversion effects in the microwave spectrum of the vapor, studied by Tolles and Gwinn. The conclusion is drawn that there are two possible paths for the dimerization or association reactions, and that one of these paths involves inversion of the SF4 molecule. The activation energy of the latter reaction corresponds closely to the inversion energy of SF4, which must be markedly smaller in this dimeric transition state than in an isolated SF4 molecule. (Author)

AD-624 641 Fld. 7/2, 7/3, 21/9
CFSTI Prices: HC $1.00 MF $0.50
IDAHO UNIV MOSCOW
NEW HYPOFLUORITES CONTAINING NITROGEN.
Quarterly technical rept. no. 6,
by Jean'ne M. Shreeve. 1 Jan 65, 5p. Contract Nonr-4217 (00) ,ARPA Order-442
Unclassified report

Descriptors: (*Oxidizers, Synthesis (Chemistry)), (*Oxyfluorides, Synthesis (Chemistry)), (*Nitrogen compounds, Oxyfluorides), Complex compounds, Fluorination, Catalysis, Pyrolysis, Stability, Decomposition, Amines, Ultraviolet radiation, Chemical analysis, Nitrates, Hydrazine derivatives

The fluorination study of trifluoronitrosomethane in the presence of a AgF2 catalyst has now been completed. Conditions of concentration, time of irradiation, and other experimental conditions were varied in an attempt to obtain as high a yield of NF2COF as possible from the irradiation of CO and N2F4. In a continuation of attempts toward the preparation of nitrogen-containing hypofluorites, preparation of some perfluoro compounds which could be used as starting materials were investigated.

AD-624 722 Fld. 7/2
LINCOLN LAB MASS INST OF TECH LEXINGTON
PREPARATION AND PARAMAGNETISM OF THE RARE EARTH TRIFLUORIDES,
by Sanford Kern, and Paul M. Raccah. 18 Feb 65, 6p. Rept. no. ja-2530
Contract AF19 (628)-5167 ESD TDR-65-54
Unclassified report

Availability: Published in the Journal of Physics and Chemistry of Solids V26 P1625-8 1965. Copies to DDC users only.

Descriptors: (*Fluorides, Rare earth compounds), (*Rare earth compounds, Magnetic properties), Synthesis (Chemistry), Magnetic moments, Molecular properties, Crystal structure

Magnetic susceptibilities of the rare earth trifluorides have been prepared and measured. They all exhibit moments close to that theoretically expected for the free ion, except at the very low temperatures. (Author)

AD-624 377 **See Fld. 11/6**

AD-624 427 **See Fld. 11/7**

AD-624 788 **See Fld. 18/8**

AD-624 802 **See Fld. 7/4**

7/3. ORGANIC CHEMISTRY

AD-624 244 Fld. 7/3
DEFENCE CHEMICAL BIOLOGICAL AND RADIATION LABS OTTAWA (ONTARIO)
PAPER CHROMATOGRAPHY OF SOME AMINE HYDROCHLORIDES AND ACETATES IN ACIDIC SOLVENT SYSTEMS,
by R. A. B. Bannard, and A. A. Casselman. 4 Sep 64, 11p. Rept. no. dcbrl-449
Unclassified report

Availability: Published in Canadian Journal of Chemistry V43 P395-404 1965. Copies to DDC users only.

Descriptors: (*Amines, Chromatographic analysis), Chlorides, Acids, Acetic acids, Solvents, Liquid filters, Paper, Ion exchange resins, Ions, Piperidines, Aromatic compounds, Canada

The chromatography of piperidine, cyclohexylamine, benzylamine, and morpholine hydrochlorides on unwashed Whatman No. 1 and No. 17 papers in t-butanol: acetic acid : water (2:1:1) leads in each case to partial conversion to the acetate salt, the mobility of which differs from that of the hydrochloride. The salt interconversion is continuous during development of the chromatograms, extended development leading to complete disappearance of the hydrochloride. Quantitative chromatography of piperidine and morpholine hydrochlorides revealed that the extent of salt interconversion is ca. 12% on unwashed and calcium ion washed Whatman No. 1 and No. 17 papers in t-butanol: acetic acid : water (2:1:1) leads in each case to partial conversion to the acetate salt, the mobility of which differs from that of the hydrochloride. The salt interconversion is continuous during development of the chromatograms, extended development leading to complete disappearance of the hydrochloride. Quantitative chromatography of piperidine and morpholine hydrochlorides revealed that the extent of salt interconversion is ca. 12% on unwashed and calcium ion washed Whatman No. 1 and No. 17 papers, ca.6% on sodium ion washed papers, and ca.1% on acid-washed papers. Piperidinium ions become bound to unwashed, acid-washed, and salt-washed Whatman No. 17 papers during chromatography in aqueous solution just as they do to the hydrogen, sodium, and calcium forms of the carboxylate ion exchanger Amberlite IRC-50 under similar conditions, indicating that a cation exchange mechanism involving carboxyl groups in the paper is responsible for the observed salt interconversion. (Author)

AD-624 316 Fld. 7/3, 13/2
CFSTI Prices: HC $1.00 MF $0.50
RUTGERS - THE STATE UNIV NEW BRUNSWICK N J SANITARY ENGINEERING LABS
REACTIONS OF CHLORINE DIOXIDE AND OTHER OXYCHLORO COMPOUNDS WITH ORGANIC COMPOUNDS. KINETICS OF REACTION BETWEEN CHLORINE DIOXIDE AND PHENOL.
Annual progress rept. no. 3, suppl.,
by M. L. Granstrom, and B. M. Israel. Mar 65, 15p. Contract DA-CML-18-108-61-G26
Unclassified report

See also AD-613 204.

Descriptors: (*Water supplies, Purification), (*Phenols, Chlorination), (*Chlorine compounds, Substitution reactions), (*Chlorination, Reaction kinetics), Impurities, Dioxides, Chemical analysis, Absorption spectrum, Oxidizers

The chlorination of water containing phenols may render it unpalatable. Chlorinated, phenols in water have been rendered innocuous by the addition of chlorine dioxide. The reactions between phenol or chlorinated phenols and chlorine dioxide was the objective of the research and the observations of reaction rates of chlorine dioxide with phenol at a single set of experimental conditions are reported. The work establishes procedure that could be used for analyses under a variety of conditions.

AD-624 329 Fld. 7/3
CALIFORNIA UNIV BERKELEY DEPT OF CHEMISTRY
ON THE BROMOPYRENES,
by A. Streitwieser,Jr., R. G. Lawler, and D. Schwaab. 27 Jul 64, 6p. Contract AF-AFOSR-554-64 AFOSR 65-1672
Unclassified report

Availability: Published in the Journal of Organic Chemistry, V30 P1470-3 May 65. Copies to DDC users only.

Descriptors: (*Polycyclic compounds, Bromine compounds), (*Bromine compounds, Polycyclic compounds), (*Amines, Polycyclic compounds), Amides, Potassium compounds, Bromination, Dehydrogenation

Treatment of 1-bromopyrene with potassium amide in liquid ammonia gave a mixture of 1-amino- and 2-aminopyrene. Sandmeyer reaction with the latter amine gave 2-bromopyrene in low yield. Bromination of 1,2,3,6,7,8hexahydropyrene gave the 4-bromo derivative which was dehydrogenated with o-chloranil to 4-bromopyrene. (Author)

AD-624 364 Fld. 7/3
CALIFORNIA UNIV SAN DIEGO DEPT OF CHEMISTRY
RESONANCE STABILIZATION OF ALPHA-FERROCENYL CARBONIUM IONS.
Revised ed.,
by J. C. Ware, and T. C. Traylor. 13 Mar 65, 11p. Contract AF-AFOSR-514-64 AFOSR 65-1669
Unclassified report

Revision of manuscript submitted 4 Jan 65.

Availability: Published on Tetrahedron Letters N18 P1295-302 1965. Copies to DDC users only.

Descriptors: (*Ferrocenes, Molecular properties), Resonance, Stabilization, Decomposition, Chemical bonds, Ions, Stereochemistry, Reaction kinetics

It is shown that the ferrocenyl group is best considered as a somewhat complexed cyclopentadienide anion in which its ability to supply electrons by resonance is severly decreased by this complexing. The remaining resonance effect on solvolysis rates is about 6 kcal./mole larger than that of a phenyl group. Although the iron atom could bond to the alpha-carbon after the ratelimiting step to govern stereochemistry, the stereospecificity of these reactions can be explained on the basis of steric effects.

AD-624 369 Fld. 7/3
IDAHO UNIV MOSCOW DEPT OF PHYSICAL SCIENCES
REACTIVE INTERMEDIATES IN THE BICYCLO/3.1.0/HEXYL AND BICYCLO/3.1.0/ HEXYLIDENE SYSTEMS. I. THE ACID-CATALYZED

ADDITION OF METHANOL AND ACETIC ACID TO BICYCLO/3.1.0/HEXENE-2,
by Peter K. Freeman, Marvin F. Grostic, and Floyd A. Raymond. 4 Aug 64, 9p. Contract AF-AFOSR-34-63 AFOSR 65-1653

Unclassified report

Presented at the National Meeting of the American Chemical Society (148th), Chicago, Ill. Aug 64.

Availability: Published in Journal of Organic Chemistry V30 P771-7 Mar 1965. Copies to DDC users only.

Descriptors: (*Cyclohexenes, Chemical reactions), Methanols, Acetic acids, Thermodynamics, Catalysis, Reaction kinetics, Molecular isomerism, Polycyclic compounds, Stereochemistry, Spectra (Infrared), Nuclear magnetic resonance, Absorption spectrum, Ethers, Synthesis (Chemistry), Cyclohexanes

Thermodynamically controlled acid-catalyzed addition of acetic acid or methanol to bicyclo/3.1.0/hexene-2 results in 4-acetoxycyclohexene or 4-methoxycyclohexene, respectively. Kinetically controlled addition of methanol results in predominantly cis- and trans-2-methoxy bicyclo/3.1.0/hexane, with formation of small amounts of 4-methoxycyclohexene. Acid-catalyzed addition of methanol-d to bicyclo/3.1.0/hexene-2 proceeds stereospecifically cis to yield trans-3-deuterio-trans-2methoxy bicyclo/3.1.0/hexane. (Author)

AD-624 373 Fld. 7/3
COLORADO UNIV BOULDER DEPT OF CHEMISTRY
BRIDGED POLYCYCLIC COMPOUNDS. XXVIII. THE PROTON MAGNETIC RESONANCE SPECTRA OF SOME DIBENZOBICYCLO/3.2.1/OCTADIENES,
by Stanley J. Cristol, Jerry R. Mohrig, and Donald E. Plorde. 13 Oct 64, 5p. Contract AF-AFOSR-62-79 Proj. AF-9762 Task 9762-02
AFOSR 65-1646

Unclassified report

Availability: Published in Journal of Organic Chemistry V30 P1956-8 Jun 1965. Copies to DDC users only.

Descriptors: (*Polycyclic compounds, Nuclear magnetic resonance), (*Cycloalkenes, Nuclear magnetic resonance), (*Stereochemistry, Polycyclic compounds), Dienes, Line spectrum, Protons, Nuclear spins, Molecular isomerism

Proton magnetic resonance spectra for a number of 4and 8-substituted dibenzobicyclo/3.2.1/octadienes are measured. Correlations of these data lead to generalizations which permit stereochemical assignments for substituents in these systems. It is possible to assign spectral frequencies to each of the four aliphatic protons in these octadienes because their chemical shifts are generally different enough to give separate peaks for each proton. Further evidence for proton assignments is found in observing the effects of substitution upon the position of spectral lines. (Author)

AD-624 405 Fld. 7/3, 7/4
FRANK J SEILER RESEARCH LAB AIR FORCE ACADEMY COLO
CARBON-13 MAGNETIC RESONANCE SPECTRA OF 1-SUBSTITUTED 1-HEXYNES,
by Daniel D. Traficante, and Gary E. Maciel. 5 Nov 64, 8p. Rept. no. srl-65-5
Proj. AF-7903

Unclassified report

Prepared in cooperation with California Univ., Davis. Dept. of Chemistry.

Availability: Published in Journal of Physical Chemistry V69 N4 P1348-51 Apr 1965. Copies to DDC users only.

Descriptors: (*Alkynes, Nuclear magnetic resonance), (*Nuclear magnetic resonance, Alkynes), Labeled substances, Stable isotopes, Carbon, Bromine compounds, Chlorine compounds, Iodine compounds, Aromatic compounds

The C13 chemical shifts of the acetylenic carbon atoms in 1-hexyne (C4H9-C≡C-X, X = H) and seven derivatives (X = CH3, Br, Cl, I, COCH3, C≡CC4H9, and C6H5) were obtained. The peaks assigned to the C-alpha resonances covered a range of 90.3 p.p.m. while those assigned to the resonance of C-beta covered a range of 28.6 p.p.m. No correlation was found between the chemical shifts and the inductive and/or resonance characteristics of the substituents X. On the basis of the opposite trends of the C-alpha and C-beta shifts with changes in halogen substituents X, it was concluded that the neighbor anisotropy model is incapable of accounting for the general features of these results. (Author)

AD-624 416 Fld. 7/3
HARVARD UNIV CAMBRIDGE MASS DEPT OF CHEMISTRY
ASPECTS OF THE CHEMISTRY OF PERESTERS,
by Paul D. Bartlett. 1965, 11p. Contract NSF-G-6218

Unclassified report

Availability: Published in Peroxide Reaction Mechanisms P1-10 1960, Copies to DDC users only.

Descriptors: (*Peroxides, Esters), (*Esters, Chemical properties), Decomposition, Free radicals, Organic nitrogen compounds, Oxalates

Topics include: The cage effect in free-radical reactions; mechanism of the fragmentation of ditertbutyl peroxyoxalate; two new radical initiators-monotert-butyl peroxyoxalate and its corresponding azoester; mechanism of perester decomposition.

AD-624 492 Fld. 7/3, 7/4
JOHNS HOPKINS UNIV BALTIMORE MD DEPT OF CHEMISTRY
FAR-INFRARED SPECTRUM OF TETRAHYDROFURAN: SPECTROSCOPIC EVIDENCE FOR PSEUDOROTATION,
by W. J. Lafferty, D. W. Robinson, R. V. St, J. W. Russell, and H. L. Strauss. 5 Nov 64, 7p. Contract AF49 (638)-1430 Proj. AF-9710 Task 9710-03
AFOSR 65-1644

Unclassified report

Prepared in cooperation with California Univ., Berkeley. Dept. of Chemistry.

Availability: Published in the Journal of Chemical Physics V42 N8 P2925-9 Apr 15 1965. Copies to DDC users only.

Descriptors: (*Furans, Spectrum (Infrared)), (*Infrared spectroscopy, Furans), Molecular properties, Chemical bonds, Rotation, Molecular energy levels, Excitation

The infrared spectra of tetrahydrofuran and tetrahydrofuran-d8 are reported between the limits 10 and 300/cm. The rather complex spectrum obtained for this molecule is interpreted in terms of the theory of pseudorotation of a puckered ring. The spectroscopically derived value of the parameter mq sub O sq. is $(8.56 \pm 0.13) \times 10$ to the -40 power/cm for the ground nu = 0, radial state and $(8.48 \pm 0.15) \times 10$ to the -40 power/cm for the excited, nu = 1, radial state. The conclusions drawn from the far-infrared spectra are quite consistent with the existing Raman and thermodynamic data. (Author)

AD-624 525 Fld. 7/3
CFSTI Prices: HC $2.00 MF $0.50

CHEMICAL RESEARCH AND DEVELOPMENT LABS EDGEWOOD ARSENAL MD
THE WISWESSER LINE-NOTATION: AN INTRODUCTION.
Technical memo. for Jan-Jun 65,
by Gerald W. Gibson, Charles E. Granito, David E. Renard, and Edward A. Metcalf. Sep 65, 30p. Rept. no. crdl-TM-7-3
Task 1C522301A06001

Unclassified report

Descriptors: (*Organic compounds, Information retrieval), Linear systems, Aromatic compounds, Aliphatic compounds

An introduction to the Wiswesser Line-Notation is presented to show the ease of converting structural information to a simple, easily learned, unambiguous linear representation. The rules for encoding acyclic and monocyclic compounds are given along with a number of examples to show how capital letters, numerals, three punctuation marks, and the blank space may be used in reducing chemical structures to unique one-dimensional notations. The uses and need for this notation system are also discussed. (Author)

AD-624 694 Fld. 7/3
PITMAN-DUNN RESEARCH LABS FRANKFORD ARSENAL PHILADELPHIA PA
FLUORINATED NITROGEN HETEROCYCLES VIA CYCLIZATION. I. TRIFLUOROMETHYL-2-PYRIDONES FROM FLUORINATED 1,3-DICARBONYLS AND CYANOACETAMIDE.
Technical research rept.,
by Seymour Portnoy. 12 Feb 65, 9p. Rept. no. a65-8
Proj. DA-1-C-O-24401-A-107

Unclassified report

Availability: Published in Journal of Organic Chemistry V30 P3377-80 Oct 1965. Copies to DDC users only.

Descriptors: (*Pyridines, Heterocyclic compounds), (*Ketones, Fluorine compounds), Organic nitrogen compounds, Fluorination, Synthesis (Chemistry)

Fluorinated 1,3-dicarbonyl compounds having the general structure CF3COCH2COR undergo cyclization with cyanoacetamide in the presence of sodium ethoxide to give several new trifluoromethyl-2-pyridones. This synthesis provides a method for the preparation of fluorinated pyridine derivatives which are not readily prepared by the action of fluorinating agents on pyridine ring substituents. Spectral evidence is presented which indicates the isolation of two hydroxypyridone tautomers from the reaction of ethyl 4,4,4-trifluoroacetoacetate and cyanoacetamide. (Author)

AD-624 725 Fld. 7/3
CFSTI Prices: HC $1.00 MF $0.50
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
SYNTHESIS AND PROPERTIES OF ORGANOELEMENTAL POLYMERS WITH SILICON, GERMANIUM, AND TIN IN THE CHAIN,
by L. K. Luneva, A. M. Sladkov, and V. V. Korshak. 1 Dec 65, 12p. Rept. no. ftd-TT-65-1662
TT 65-64781

Unclassified report

Unedited rough draft trans. of Vysokomolekulyarnye Soedineniya (USSR) v7 n3 p427-31 1965.

Descriptors: (*Polymers, Metalorganic compounds), (*Metalorganic compounds, Polymers), USSR, Silicon compounds, Germanium compounds, Tin compounds, Chemical bonds, Synthesis (Chemistry), Atomic orbitals, Resistance (Electrical), Heat of activation, Complex compounds

There were obtained organosilicon, organogermanium, and organotin polymers which contain double bonds in the chain, alternating with the atoms of silicon, germanium, and tin. The data of

the electrophysical investigations (internal resistance and energy of activation of conductivity) justify ones assuming that the d-orbits of Si, Ge, and Sn take part in the formation of the chemical bond. (Author)

AD-624 819 Fld. 7/3
CFSTI Prices: HC $2.00 MF $0.50
ARMY WEAPONS COMMAND ROCK ISLAND ILL RESEARCH AND ENGINEERING DIV
APPLICATION OF GAS CHROMATOGRAPHY TO ANALYSES OF ARMY WEAPONS MATERIALS: II ANALYSIS OF FATTY ACIDS.
Technical rept.,
by Thomas Rice. Oct 65, 41p. Rept. no. tr-65-2816
Unclassified report

Descriptors: (*Gas chromatography, Fatty acids), (*Fatty acids, Gas chromatography), (*Esters, Gas chromatography), Mixtures, Chemical analysis, Chemisorption

Gas chromatographs of methyl esters of seven saturated and four unsaturated fatty acids in various mixtures have been made. Liquid phases included Resoflex 296, Reoplex 400, Silicone SE-30, diethylene glycol succinate, Resoflex 296 plus phosphoric acid, Ucon plus coumarone, and Apiezon L. Solid supports included Gas Chrom A, Gas-Chrom R, Chromosorb W, Chromosorb W-HMDS, and Chromosorb P. The report includes 13 chromatographs and 10 tables. Separations of unsaturated from saturated compounds were not entirely satisfactory. Better results were obtained with temperature programmed than with isothermal tests. (Author)

AD-624 274 See Fld. 7/4

AD-624 303 See Fld. 8/1

AD-624 326 See Fld. 7/2

AD-624 332 See Fld. 7/2

AD-624 374 See Fld. 7/4

AD-624 386 See Fld. 7/2

AD-624 387 See Fld. 7/2

AD-624 388 See Fld. 7/2

AD-624 389 See Fld. 7/2

AD-624 390 See Fld. 7/2

AD-624 406 See Fld. 8/1

AD-624 427 See Fld. 11/7

AD-624 469 See Fld. 6/1

AD-624 480 See Fld. 11/9

AD-624 544 See Fld. 11/10

AD-624 641 See Fld. 7/2

AD-624 657 See Fld. 8/1

AD-624 735 See Fld. 11/10

7/4. PHYSICAL CHEMISTRY

AD-624 243 Fld. 7/4, 20/4
MCGILL UNIV MONTREAL (QUEBEC) DEPT OF CHEMISTRY
PARTICLE MOTIONS IN SHEARED SUSPENSIONS. XVI. ORIENTATIONS OF RODS AND DISKS IN HYPERBOLIC AND OTHER FLOWS,
by C. E. Chaffey, M. Takano, and S. G. Mason. 14 Dec 64, 20p. Contract DRB-9530-47
Unclassified report

Availability: Published in Canadian Journal of Physics, V43 P1269-86 Jul 1965. Copies to DDC users only.

Descriptors: (*Particle trajectories, Colloids), (*Colloids, Shear stresses), (*Fluid flow, Colloids), Bodies of revolution, Rods, Disks, Equations of motion, Velocity, Viscosity, Couette flow, Two-dimensional flow, Tensor analysis, Canada

The angular velocity of a body of revolution suspended in a viscous fluid undergoing slow arbitrary shear flow is given. Integrated equations are derived for the orientation of its axis, directly in terms of the vorticity and dilatation components, for any flow in which the vorticity is parallel to a principal axis of dilatation; these are analogous to the equations for motion of a spheroid in Couette flow with an electric field parallel or perpendicular to the vorticity. The flows considered include examples of hyperbolic-parabolic, elliptic-spiral, and hyperboliclogarithmic flows in three dimensions, as well as all twodimensional shear flows. The behavior of certain bodies of revolution that remain stationary in Couette flow is discussed. Translational orbits of asymmetric bodies of revolution in Couette flow are calculated. The behavior of particles in some important shear flows is described, the theory of rotation in hyperbolic flow being developed in detail and confirmed experimentally with rods and disks. Comparison of equivalent ellipsoidal axis ratios obtained from Couette-flow and hyperbolic-flow measurements shows that the former are more accurate if the particle deviates greatly from the spherical shape. (Author)

AD-624 264 Fld. 7/4, 20/3
CFSTI Prices: HC $1.00 MF $0.50
PRINCETON UNIV N J DEPT OF CHEMISTRY
A STUDY OF THE KINETICS AND MECHANISM OF ELECTROLYTIC FILM FORMATION REACTIONS.
Final rept. 1 Nov 62-31 Oct 64,
by C. G. Enke. 31 Oct 64, 9p. Contract AF-AFOSR-151-63 Proj. AF-9710 Task 9710-03 AFOSR 65-1560
Unclassified report

Descriptors: (*Electrodes, Films), (*Films, Electrolysis), (*Electrolysis, Reaction kinetics), Electrolytes, Electrodeposition, Sweep generators, Palladium, Hydrogen, Silver, Mercury, Electrical double-layer, Capacitance

A summary is presented of an investigation on the development of electrochemical tools for studying the electrode-electrolyte interface and on their application to systems of interest. A triangular sweep generator was designed and constructed for use with potential sweeping experiments, and the palladium-hydrogen electrode was studied. Two new techniques for the measurement of double-layer capacitance at solid electrodes were also developed. Capacitance measurements were made on silver electrodes in perchlorate solutions, and a method of wetting a platinum surface with liquid mercury was discovered. (Author)

AD-624 273 Fld. 7/4
STANFORD UNIV CALIF DEPT OF CHEMISTRY
SECOND AND FOURTH MOMENTS OF CHAIN MOLECULES,
by P. J. Flory, and R. L. Jernigan. 29 Dec 64, 14p. Contract AF49 (638)-1341 AFOSR 65-1642
Unclassified report

Availability: Published in the Journal of Chemical Physics V42 N10 P3509-19 15 May 1965. Copies to DDC users only.

Descriptors: (*Polymers, Moments), (*Moments, Polymers), Chemical bonds, Rotation, Molecular isomerism, Numerical analysis, Statistical mechanics, Alkanes, Matrix algebra

Exact methods are developed for calculating second and fourth moments (M2) and (M4) of chain molecules. The rotational isomeric-state approximation is adopted to represent the effects of hindrance potentials affecting bond rotations. No other approximations are invoked in deriving the statistical-mechanical averages denoted by ( ). Account is taken of neighbor correlations, and the treatment is applicable alike to finite and infinite chains. The methods are applicable also to chains having any variety of bonds in linear succession.

AD-624 274 Fld. 7/4, 6/1, 7/3
STANFORD UNIV CALIF DEPT OF CHEMISTRY
THERMODYNAMIC PROPERTIES OF SOLUTIONS OF HELICAL POLYPEPTIDES,
by Paul J. Flory, and William J. Leonard,Jr.. 26 Jan 65, 9p. Contract AF49 (638)-1341 AFOSR 65-1641
Unclassified report

Availability: Published in Journal of the American Chemical Society V87 N10 P2102-8 20 May 1965. Copies to DDC users only.

Descriptors: (*Peptides, Solutions), Amino acids, Glutamic acid, Aspartic acid, Polymers, Solvents, Pyridines, Halogenated hydrocarbons, Chloroform, Thermodynamics, Molecular weight, Molecular structure, Helices, Entropy, Vapor pressure, Volume

Partial pressures of mixtures of pyridine and of 1,2dichloroethane with poly-gamma-benzyl-L-glutamate were determined at 25C for volume fractions of solvent from 0 to ca. 0.4. Similar experiments were carried out on mixtures of chloroform with poly-beta-benzyl-Laspartate. In all cases the solvent activities increase gradually and smoothly with solvent concentration; they are insensitive to the molecular weight of the polymer. The Henry's law slope at a volume fraction of 0 is very much less than would be required by ideal solution theory, which should apply to a system of impenetrable rod-like particles at high concentration. The observed behavior is readily explicable in terms of solvent mixing with side chains of alpa-helical solute particles. The driving force for this mixing is primarily entropic. It dominates the concentrated solution thermodynamic behavior of these systems and appears to be a requisite for solubility of polypeptides in the form of intact helices. The solvent activities are devoid of evidence of phase transitions. The occurrence of conformational changes with dilution is rendered extremely unlikely by the resuls presented. The side chains of the undiluted polypeptide evidently are disordered. (Author)

AD-624 276 Fld. 7/4, 12/1, 9/2
HARVARD COLL OBSERVATORY CAMBRIDGE MASS SOLAR DEPT
METHOD FOR CALCULATING MATRIX ELEMENTS BETWEEN CONFIGURATIONS WITH SEVERAL OPEN I SHELLS.
Scientific rept. (Revised ed),
by Bruce W. Shore. 23 Mar 65, 12p. Rept. no. sr-7
Contract AF19 (628)-3322 ,AF19 (604)-4962
Proj. AF-7649 Task 764906
AFCRL 65-80
Unclassified report

Availability: Published in the Physical Review, V139 N4A PA1042-8 Aug 16 1965. Copies to DDC users only.

Descriptors: (*Atomic structure, Wave functions), (*Wave functions, Matrix algebra), (*Matrix algebra, Programming (Computers)), Operators (Mathematics), Nuclear shell models, Quantum mechanics, Atomic energy levels

A simple procedure applicable to a digital computer is given for calculating matrix elements of F-

and G-type operators between configurations that involve several partially filled l or j shells. The new procedure uses 'partially coupled' basis functions, instead of traditional 'uncoupled' (determinantal) or 'coupled' basis functions, and may provide a simpler method for calculating configuration mixing in highly excited states of very complex atoms or for calculating nuclear shell-model energies. (Author)

AD-624 279 Fld. 7/4
FRICK CHEMICAL LAB PRINCETON UNIV NJ
A GENERAL TREATMENT OF EQUILIBRIUM COPOLYMERIZATION,
by A. V. Tobolsky, and G. D. T. Owen. 19 May 61, 11p. Contract AF49 (638)-974 Proj. AF-9762 Task 9762-03
AFOSR 65-1634
Unclassified report

Availability: Published in Journal of Polymer Science V59 P329-37 1962. Copies to DDC users only.

Descriptors: (*Copolymerization, Chemical equilibrium), Polymerization, Theory

A general theory of equilibrium copolymerization is developed which is analogous to that of equilibrium homopolymerization. The theory is compared with published experimental results on sulfur-selenium copolymers. The equilibrium constants developed previously for sulfur and for selenium homopolymerization are utilized in this new copolymerization theory, and no other mathematical assumptions are made. The theory is in agreement with the experimental results. (U)

AD-624 280 Fld. 7/4
UNIVERSITY OF SOUTHERN CALIFORNIA LOS ANGELES DEPT OF CHEMISTRY
A STUDY OF DOUBLE LAYER REPULSION AND VAN DER WAALS ATTRACTION IN SOAP FILMS,
by J. Lyklema, and Karol J. Mysels. 20 Jan 65, 11p. Contract AF49 (638)-309 Proj. AF-9760 Task 9760-02
AFOSR 65-1633
Unclassified report

Availability: Published in Journal of American Chemical Society V87 P2539-46 1965. Copies to DDC users only.

Descriptors: (*Soaps, Films), (*Films, Molecular properties), (*Molecular properties, Films), Colloids, Solutions, Compressive properties, Thickness

Measurements of equilibrium thicknesses of soap films the over a range of ionic strengths are presented for mobile and rigid films of sodium lauryl sulfate in the presence of lithium chloride. The forces determining this thickness are discussed in terms of existing theories of van der Waals attractions and of electric double layer repulsion. Some of the problems involved in the experimental testing of these theories are brought out. While there is good qualitative agreement between theory and experiment, definite quantitative discrepancies appear also. It is suggested that some of these could stem from limitations of the double layer theory. (Author)

AD-624 287 Fld. 7/4, 20/1
GENERAL ELECTRIC RESEARCH LAB SCHENECTADY N Y
CHEMISORPTION ON SINGLE-CRYSTAL PLANES: NITROGEN ON TUNGSTEN,
by T. A. Delchar, and Gert Ehrlich. 23 Nov 64, 18p. Rept. no. Res. Lab. Reprint-5192
Contract AF49 (638)-1362 Proj. AF-9760 Task 9760-03
AFOSR 65-1643
Unclassified report

Availability: Published in the Journal of Chemical Physics V42 N8 P2686-2702 Apr 15 1965. Copies to DDC users only.

Descriptors: (*Chemisorption, Nitrogen), (*Single crystals, Tungsten), Surface properties, Crystal structure, Work functions, Adsorption, Field emission

The effects of surface structure on the adsorption of nitrogen have been examined by contact-potential measurements on macroscopic planes cut from single-crystal tungsten. On the (100), room-temperature chemisorption lowers the work function by 0.4 eV, confirming previous field-emission results. Flash desorption reveals only one state, beta, in which nitrogen is bound as adatoms. On the considerably less reactive (111) the work function phi rises by 0.15 eV. Two states contribute: alpha, which is probably molecular, and beta; both raise phi. At higher concentrations, a second beta state is isolated by flash desorption. Nitrogen does not chemisorb at all on the (110) at 300K and p=10 to the -7th power mm. Adsorption of gamma nitrogen can, however, by observed by lowering the temperature to T=130K or raising the pressure above 0.001 mm. On the (110), this state is atomic and lowers phi. On other planes, gamma nitrogen has different properties and forms because of the heterogeneity induced in the surface layer by the presence of adatoms. Macroscopic surfaces can therefore be prepared showing extreme structural specificity. Previous correlations between the work-function changes and electronegativities are examined and are found insufficient. The effects of structure on the surface dipole are, however, correlated by the empirical rule that nitrogen atoms on flat planes lower the work function, whereas on rough surfaces the work function is increased. (Author)

AD-624 291 Fld. 7/4, 20/4, 8/10
CFSTI Prices: HC $1.00 MF $0.50
LITTLE (ARTHUR D) INC CAMBRIDGE MASS
THE EFFECT OF ELECTROLYTE ADDITION ON THE VISCOSITY OF WATER UNDER PRESSURE.
Technical rept.,
by R. A. Horne, and D. S. Johnson. 30 Nov 65, 16p. Rept. no. tr-16
Contract Nonr-4424 (00) Proj. NR-051-460
Unclassified report

Descriptors: (*Water, Viscosity), (*Sea water, Viscosity), (*Viscosity, Hydrostatic pressure), (*Electrolytes, Hydrostatic pressure), Sodium compounds, Chlorides, Solutions, Viscosity, Heat of activation

The viscosities of 1.0 and 2.0M aqueous NaCl solutions were measured at +4C and +10C under hydrostatic pressures ranging from 1 atm to 2,000 kg/sq cm. The presence of the electrolyte tends to reduce the absolute value of the minimum in the pressure-dependence of the relative viscosity of water. (Author)

AD-624 292 Fld. 7/4, 20/3, 8/10
CFSTI Prices: HC $1.00 MF $0.50
LITTLE (ARTHUR D) INC CAMBRIDGE MASS
THE ARRHENIUS ACTIVATION ENERGY OF ELECTRICAL CONDUCTANCE IN H20 AND D20.
Technical rept.,
by R. A. Horne, and D. S. Johnson. 30 Nov 65, 11p. Rept. no. tr-17
Contract Nonr-4424 (00) Proj. NR-051-460
Unclassified report

Descriptors: (*Water, Electrical conductance), (*Heavy water, Electrical conductance), (*Electrical conductance, Heat of activation), (*Heat of activation, Electrical conductance), Sea water, Potassium compounds, Chlorides, Solutions, Electrolytes

Like the temperature of maximum density, the temperature at which the Arrhenius activation energy of the electrical conductance of strong, 'normal', 1:1 electrolytes, such as KC1, exhibits a maximum is displaced to higher values when D2O is substituted for H2O as solvent as a consequence of the somewhat higher degree of structure in the former liquid. (Author)

AD-624 330 Fld. 7/4
MINNESOTA UNIV MINNEAPOLIS DEPT OF CHEMISTRY
REVIEW OF FUNDAMENTALS OF POLAROGRAPHY IN INERT ORGANIC SOLVENTS,
by I. M. Kolthoff. 1964, 18p. Contract AF AFOSR28-63 AFOSR 65-1652
Unclassified report

The Inaugural Lecture of Honour of the International Congress of Polarography (3rd).

Availability: Published in Journal of the Polarographic Society, V10 N2 P22-36 1964. Copies to DDC users only.

Descriptors: (*Polarographic analysis, Organic solvents), (*Acetonitriles, Polarographic analysis), Titanium compounds, Halides, Dielectric properties, Acids, Bases (Chemistry), Salts

The fundamental aspects of polarography in nonaqueous media are reviewed with special emphasis on inert, non-protonating solvents. The interrelationship between the potential scales in different solvents is considered, in terms of the Pleskov and Strehlow conventions. The polarography of cationic and anionic species in acetonitrile is discussed in detail. Protonation reactions in non-aqueous solvents is also considered in terms of the acid-base characteristics of each system. Finally, a detailed description is given of the polarography of titanium halides in acetonitrile. (Author)

AD-624 331 Fld. 7/4
MCMASTER UNIV HAMILTON (ONTARIO) DEPT OF CHEMISTRY
NUCLEAR MAGNETIC RESONANCE SPECTROSCOPY OF SOME SELENIUM COMPOUNDS,
by T. Birchall, R. J. Gillespie, and S. L. Vekris. 1 Dec 64, 12p. Contract AF-AFOSR-516-64 Proj. AF-9710 Task 9710-01
AFOSR 65-1670
Unclassified report

Availability: Published in Canadian Journal of Chemistry V43 P1672-9 1965. Copies to DDC users only.

Descriptors: (*Selenium compounds, Nuclear spectroscopy), Nuclear magnetic resonance, Canada, Mixtures, Oxides, Halides, Chlorides, Fluorides, Boron compounds, Sulfur, Antimony compounds, Tin compounds, Arsenic compounds, Potassium compounds, Bromides, Quinolines, Impurities, Exchange reactions, Nuclear properties

Selenium nuclear magnetic resonance spectra have been observed for a number of selenium compounds. Chemical shifts and coupling constants with hydrogen and fluorine have been obtained. Various systems involving selenium compounds have been studied. It was found that a mixture of SeOF2 and SeOC12 contains SeOClF and that rapid selenium exchange occurs between SeOC12 and SeOBr2 presumably via the intermediate SeOC1Br. The reactions of selenium tetrahalides with sulfur and selenium trioxides and with boron trifluoride were studied. It was observed that antimony pentachloride, tin tetrachloride, arsenic trichloride, quinoline, and potassium chloride produce considerable shifts in the resonance of selenium oxychloride. These shifts can be interpreted in terms of the acid-base behavior of the solutes. (Author)

AD-624 333 Fld. 7/4, 20/8
CHICAGO UNIV ILL INST FOR THE STUDY OF METALS
BESTIMMUNG DES KLEINSTEN LONENABSTANDES IN IONISCHEN SCHMELZEN MITTELS KERNRESONANZ (DETERMINATION OF THE CLOSEST APPROACH OF IONS IN IONIC MELTS BY MEANS OF NUCLEAR RESONANCE),
by Norman H. Nachtrieb, and Stefan Hafner. 7 Dec 64, 6p. Contract AF-AFOSR-624-64 AFOSR 65-1674

Unclassified report

Availability: Published in Zeitschrift fur Naturforschung, V20 N3 P321-4 1965. Copies to DDC users only.

Descriptors: (*Ions, Nuclear magnetic resonance), (*Nuclear magnetic resonance, Molecular structure), Wave functions, Salts, Melting, Thallium compounds, Chlorides, Excitation, Ground state, Paramagnetic resonance, West Germany

At constant magnetic field the resonance frequencies of nuclei in ionic salts increase linearly with temperature in both the crystalline and molten states. The linear temperature-dependence of the chemical shift is ascribed to the excitation of higher paramagnetic electronic states which accompanies the increasing overlap of cation and anion wave functions; both are proportional to the linear increase in the mean squared vibrational amplitude of ions with temperature. The magnitude of the break in the chemical shift at the melting point, coupled with a knowledge of the change in the coordination number and the variation in the wave function overlap with internuclear separation leads to an estimate of the distance of closest approach of neighboring ions in the molten state. For an assumed value of F = 0.9, the distance of closest cation-anion approach decreases by 0.18 A as crystalline TlCl melts to form the liquid salt. The overlap of Tl (+) and Cl (-) ions in crystalline TlCl at room temperature is 0.012 on the basis of the NMR frequency of 205Tl (+) and is estimated to be 0.017 from machine calculations based on analytic wave functions for the ground states of the ions. (Author)

AD-624 346 Fld. 7/4
WALTER REED ARMY INST OF RESEARCH WASHINGTON D C DIV OF BIOCHEMISTRY
THE ATOMIC ABSORPTION SPECTROSCOPY OF CHROMIUM,
by Fredric J. Feldman, and William C. Purdy. 1 Dec 64, 6p.

Unclassified report

Prepared in cooperation with Maryland Univ., College Park. Dept. of Chemistry.

Availability: Published in Analytica Chemica Acta V33 P273-8 1965. Copies to DDC users only.

Descriptors: (*Chromium, Absorption spectrum), (*Atomic spectroscopy, Chromium), Chemical analysis, Solvents, Flames, Ketones

Conditions were studied for the determination of trace amounts of chromium by atomic absorption spectroscopy. Solution matrix, flame composition, and extraction procedures were the variables studied. A detection limit of 0.006 p.p.m. of chromium was observed with an airhydrogen flame and methyl isobutyl ketone as the solvent. (Author)

AD-624 352 Fld. 7/4
RESEARCH LAB OF ELECTRONICS MASS INST OF TECH CAMBRIDGE
CORRELATION FUNCTIONS IN NUCLEAR RELAXATION I. ANALYSIS OF RANDOM MOTIONS FROM FIELD DEPENDENCE OF RELAXATION TIMES,
by J. M. Deutch, and J. S. Waugh. 13 May 65, 5p. Contract DA-36-039-AMC-03200 (E)

Unclassified report

Availability: Published in the Journal of Chemical Physics V43 N6 P1914-8 Sep 15 1965. Copies to DDC users only.

Descriptors: (*Nuclear spins, Relaxation time), (*Molecular properties, Motion), Chemical bonds, Rotation, Statistical functions, Diffusion, Numerical methods and procedures

The contributions to T1 in a fluid arising from spin-rotational interaction and chemical-shielding anisotropy are discussed in terms of their simultaneous use to analyze the detailed nature of random rotations without the need of a microscopic theory. This possibility often exists because of the involvement of different correlation functions of the lattice variables and the experimental distinguishability of the latter mechanism through its magnetic-field dependence. The method is illustrated by comparing the results to be expected for three different random processes: (1) rotational diffusion, (2) random walk among the m-i states of a rotational manifold of fixed J with no selection rules, (3) the same with a rigorous delta m-i = =1 selection rule. Possible favorable experimental cases are discussed. (Author)

AD-624 354 Fld. 7/4, 20/8
RESEARCH LAB OF ELECTRONICS MASS INST OF TECH CAMBRIDGE
STRONG COUPLING IN NUCLEAR RESONANCE SPECTRA. V. PERTURBATION THEORY FOR THE EXTREME COUPLING CASE,
by J. S. Waugh, and E. L. Wei. 14 Jun 65, 4p. Contract DA-36-039-AMC-03200 (E)

Unclassified report

Availability: Published in the Journal of Chemical Physics, V43 N7 P2308-11 Oct 1 1965. Copies to DDC users only.

Descriptors: (*Nuclear magnetic resonance, Nuclear spectroscopy), (*Perturbation theory, Nuclear magnetic resonance), (*Nuclear spectroscopy, Nuclear magnetic resonance), Nuclear resonance, Nuclear spins, Hamiltonian, Alkynes

The perturbation theory of NMR spectra is given for the case in which the relative chemical shift between two groups is much smaller than the coupling constant J. Results are given for the systems AB, AB2, AB3, A2B2, and A2B3 from which it is possible to obtain the parameters from the appropriate spectra without detailed analysis. The proton spectra of methylacetylene is discussed as an example. (Author)

AD-624 374 Fld. 7/4, 7/3
UTAH STATE UNIV LOGAN DEPT OF CHEMISTRY
PYROLYSIS STUDIES. XV. THERMAL RETROGRADE ALDOL CONDENSATION OF BETA-HYDROXY KETONES,
by Grant Gill Smith, and Brian L. Yates. 29 Dec 64, 1p. Contract AF AFOSR-62-268 AFOSR 65-1647

Unclassified report

Presented in part, at the Northwest Regional Meeting of the American Chemical Society in Spokane, Wash., June 1964. See also AD-617 231.

Availability: Published in the Journal of Organic Chemistry, V30 P2067 1965.

Descriptors: (*Pentanones, Pyrolysis), (*Pyrolysis, Reaction kinetics), (*Ketones, Pyrolysis), (*Alcohols, Pyrolysis), (*Pentanols, Pyrolysis), Vapors, Condensation reactions, Thermochemistry, Acetones

A report is given of the vapor phase kinetics of a retrograde aldol condensation of 4-hydroxy-4-methyl-2pentanone which thermally decomposes to acetone. Based on the kinetics obtained and the products formed it is proposed that beta-hydroxy ketones thermally decompose in the vapor state through a six-membered cyclic transition state mechanism similar to those proposed for the pyrolysis of esters beta-hydroxy olefins, and beta, gammaunsaturated acids. However, the temperature required for the pyrolysis of 4-hydroxy-4-methyl-2-pentanone (200-250C) is much lower than that for simple aliphatic esters (300-400C), beta-hydroxy olefins (350-400C), and beta, gamma-unsaturated acids (369-378C). This indicates that although the acidity of the hydrogen, which is thought to be involved in the transition state, is not particularly important the greater basicity of the C=O bond in the beta-hydroxy ketones over that of C=C bond is significant. (Extracted)

AD-624 378 Fld. 7/4, 12/1, 20/8
OSLO UNIV (NORWAY) INST FOR THEORETICAL PHYSICS
PERTURBATION THEORY EXPANSIONS THROUGH 21ST ORDER OF THE NON-RELATIVISTIC ENERGIES OF THE TWO-ELECTRON SYSTEMS (2P)23P AND (1S)21S,
by John Midtdal. Dec 64, 14p. Rept. no. 26 Contract AF-EOAR-32-64 AFOSR 65-1662

Unclassified report

Availability: Published in Physica Mathematica, P3-13 1965. Copies to DDC users only.

Descriptors: (*Perturbation theory, Wave functions), (*Atomic energy levels, Perturbation theory), Electrons, Energy, Series, Calculus of variations, Hydrogen, Helium

A tenth-order perturbation wave function is presented for both the 2 (p)23P state and the (1s)21S state of a two-electron system. Estimates of the correct perturbation energy coefficients through 21st order were evaluated giving the total non-relativistic energies with ten significant figures.

AD-624 384 Fld. 7/4
OBERLIN COLL OHIO DEPT OF CHEMISTRY
VAPORIZATION CATALYSIS. THE DECOMPOSITION OF GALLIUM NITRIDE,
by Richard C. Shoonmaker, Albert Buhl, and James Lemley. 19 Apr 65, 6p. Contract DA-ARO (D)-31-124-G397 AROD 3952:3

Unclassified report

Availability: Published in the Journal of Physical Chemistry, V69 N10 P3455-60 Oct 1965. Copies to DDC users only.

Descriptors: (*Vaporization, Catalysis), (*Gallium compounds, Nitrides), (*Nitrides, Decomposition), Sublimation, Catalysts, Gallium, Indium, Reaction kinetics, Differential equations

The vaporization of gallium nitride has been studied by weight loss and torsion effusion techniques. In the temperature range around 900 the nitride vaporizes by decomposition to gallium and nitrogen. The results suggest that the vaporization coefficient for the decomposition is much less than unity. The rate of vaporization of gallium nitride is shown to be markedly enhanced in the presence of metallic gallium or indium, and it is concluded that these metals serve as catalysts for the vaporization of gallium nitride. (Author)

AD-624 404 Fld. 7/4
MCGILL UNIV MONTREAL (QUEBEC) DEPT OF CHEMISTRY
OPTICAL INTERFERENCE IN CURVED SOAP FILMS,
by H. M. Princen, and S. G. Mason. 25 Jan 65, 12p. Contract DRB-9530-47

Unclassified report

Availability: Published in Journal of Colloid Science V20 N5 P453-63 Jun 1965. Copies to DDC users only.

Descriptors: (*Soaps, Films), (*Films, Thickness), (*Interference, Films), Optical phenomena, Bubbles, Light, Light intensity, Monochromatic light, Measurement

A method of measuring the thickness of soap bubbles from the interference effects in transmitted monochromatic and white light is described. With monochromatic light it is based on the observation of the maxima and minima in the transmitted intensity; with white light the film thickness is obtained from the colors of the transmitted light. These interferences are most pronounced in the region where the angle of incidence is close to 90 degrees, i.e., along the outline of the bubble. (Author)

AD-624 434 Fld. 7/4, 20/3
CFSTI Prices: HC $1.00 MF $0.50
PRINCETON UNIV N J
RESEARCH ON DIELECTRIC PROPERTIES AND THE STRUCTURE OF MATTER.
Quarterly status rept. no. 38, 1 Jul-30 Sep 65,
by Charles P. Smyth. 30 Sep 65, 6p. Contract Nonr-1858 (09) Proj. NR-014-201
Unclassified report

See also AD-620 163.

Descriptors: (*Dielectric properties, Liquids), (*Molecular structure, Dielectric properties), Ethers, Aromatic compounds, Microwaves, Interferometers

Work is briefly summarized on: Microwave absorption and molecular structure in liquids; Intramolecular relaxation in aromatic ethers; Precise michelron interferometer for measuring dielectric constant and loss at 2.1 mm.

AD-624 444 Fld. 7/4
CFSTI Prices: HC $1.00 MF $0.50
CALIFORNIA UNIV LOS ANGELES DEPT OF PHYSICS
COVALENCY PARAMETERS AND THE G FACTOR FOR NI (2+): KMGF3,
by Nai Li Huang, and E. Simanek. 1965, 13p.
Contract Nonr-233 (88)
Unclassified report

Descriptors: (*Chemical bonds, Molecular orbitals), (*Magneto-optic effect, Molecular orbitals), Potassium compounds, Magnesium compounds, Fluorides, Nickel compounds, Molecular structure, Valence, Excitation, Paramagnetic resonance

The covalency parameter, a, in the excited state of Ni (2+): KMgF3 (d (8), t (2) (5)eg (3)) is determined from the experimental EPR values for the g shift, b and c in the ground level (d (8), t (2) (6)eg (2)). The procedure involves evaluation of small terms in the orbital reduction factor which have hitherto been neglected and which can contribute significantly in more covalently bonded salts. The value of a = 0.32 obtained by this method is remarkably close to the EPR value for b = 0.31, and indirectly supports the argument for cancellation of the spin densities in the sigma and pi orbitals of the fluorine ions in manganese salts. It is suggested that the large pi-bonding arises from the anion crystal field splitting which is important when the promotion energy for the electron transfer is sufficiently small. The contribution to the g factor coming from an electron transfer process is formulated for Ni (2+): KMgF3 but is to be small for this case. (Author)

AD-624 517 Fld. 7/4
LYMAN LAB OF PHYSICS HARVARD UNIV CAMBRIDGE MASS
STUDY OF COLLISION NARROWING BY COMPARISON OF MOLECULAR-BEAM AND GAS-PHASE NUCLEAR RESONANCE SPECTRA,
by L. M. Crapo, and G. W. Flynn. 12 Apr 65, 9p.
Contract Nonr-1866 (19) Proj. NR-024-012
Unclassified report

Availability: Published in the Journal of Chemical Physics, V43 N5 P1443-50 Sep 1 1965. Copies to DDC users only.

Descriptors: (*Nuclear resonance, Molecular beams), (*Molecular beams, Nuclear spectroscopy), Nuclear spins, Kinetic theory, Gases, Molecular rotation, Magnetic fields, Carbon compounds, Fluorides, Silicon compounds, Hydrogen compounds

The second moments of molecular-beam nuclear resonance curves are compared through a simple motionnarrowing theory with linewidths from gas-phase NMR data for CF4, SiF4, SF6, CH3F, CF3H, and CH2F2 at 300K. From this comparison the average number of collisions necessary for these molecules to change their angular momentum is estimated to be on the order of three. (Author)

AD-624 534 Fld. 7/4
CFSTI Prices: HC $1.00 MF $0.50
AEROSPACE CORP EL SEGUNDO CALIF LAB OPERATIONS
ABSORPTION EDGE SPECTRUM OF SCANDIUM OXIDE,
by Harry H. Tippins. Oct 65, 16p. Rept. no. TDR-669 (9230-02)-4
Contract AF04 (695)-669 SSD TR-65-156
Unclassified report

Descriptors: (*Absorption spectrum, Scandium compounds), (*Scandium compounds, Oxides), Ultraviolet spectroscopy, Single crystals, Band theory of solids, Photoconductivity, Molecular energy levels

The ultraviolet absorption spectrum of single crystals of nominally pure Sc2O3 was measured at room temperature and at liquid nitrogen temperature. The results are compared with the probable energy level structure of the system. An estimate of the expected position of the absorption threshold based on a simple charge transfer model gives reasonable agreement with the observed absorption edge. (Author)

AD-624 543 Fld. 7/4, 11/6, 21/9.1
CFSTI Prices: HC $2.00 MF $0.50
AEROCHEM RESEARCH LABS INC PRINCETON N J
KINETICS OF THE ATTACK OF MOLYBDENUM BY DISSOCIATED CHLORINE,
by Daniel E. Rosner. Jul 65, 26p. Rept. no. tp-117
Contract AF49 (638)-1195
Unclassified report

Descriptors: (*Corrosive gases, Chlorine), (*Chlorine, Chemical reactions), (*Molybdenum, Corrosion), (*Corrosion, Reaction kinetics), Oxidizers, Dissociation, Chemisorption, Microwaves, Induction heating, Chlorination, Nickel, Thermochemistry

The true kinetics of the attack of molybdenum surfaces by both atomic and diatomic chlorine were studied using microwave discharge fast-flow system techniques coupled with electrical resistance heating and monitoring of the reacting specimens. Experimental results are reported over the surface temperature range from 400K to 1530K, at reactant partial pressures of the order of 0.001 to 0.1 Torr. In contrast to the behavior of nickel, dissociation markedly increases the chlorination probability of molybdenum over the entire temperature range investigated, the enhancement being of the order of 100-fold at about 1000K. The high reaction probability for Cl2 (g) attack of high temperature nickel was verified. When exposed to dissociated chlorine the ratio of the nickel chlorination rate to the Cl-atom recombination rate decreases with decreasing surface temperature-on 420K nickel filaments the recombination coefficient was found to be 1/2. The implications of these results with regard to dissociative adsorption and evaporation on/from nickel and molybdenum surfaces are discussed in the light of available kinetic and thermochemical data for these and related heterogeneous reactions. (Author)

AD-624 595 Fld. 7/4, 11/2
CFSTI Prices: HC $2.00 MF $0.50
RUTGERS-THE STATE UNIV NEW BRUNSWICK N J SCHOOL OF CHEMISTRY
INFRARED STUDY OF THE NATURE OF THE HYDROXYL GROUPS ON THE SURFACE OF POROUS VYCOR GLASS.
Technical rept. Jul-Nov 65,
by Manfred J. D. Low, and N. Ramasubramanian. 1 Nov 65, 34p. Rept. no. tr-1
Contract Nonr-404 (19)
Unclassified report

Descriptors: (*Infrared spectroscopy, Heat-resistant glass), (*Heat-resistant glass, Porous materials), (*Surface properties, Heat-resistant glass), Dehydration, Band spectrum

The slow dehydration and dehydroxylation of porous Vycor glass was followed by infrared spectroscopic techniques from 500C to 825C. Four bands at 3850, 3755, 3710, and 3650/cm were observed. Dehydroxylation, deuteration, and fluoridation experiments showed all bands to be due to surface hydroxyl species. The 3755/cm band is due to free surface hydroxyls. The 3650/cm band is due to OH vibrations perturbed by hydrogen bonding. The 3710/cm band has not been detected before, has a half-width of 5 to 14/cm, and can only be observed at relatively low surface coverage. Impregnation of silica and porous glass with boric acid produced a band at 3710/cm with the silica and enhanced that found with the glass, leading to the assignment of the 3710/cm band to a B-OH surface structure. The 3850/cm band is tentatively assigned to a combination of silanol and B-OH frequencies. (Author)

AD-624 610 Fld. 7/4
CFSTI Prices: HC $2.00 MF $0.50
NAVAL RESEARCH LAB WASHINGTON D C
SURFACE CHEMISTRY OF FLUOROCHEMICALS.
Interim rept.,
by N. L. Jarvis, and W. A. Zisman. 21 Oct 65, 37p. Rept. no. NRL-6324
Proj. RR-001-01-43-4751
Unclassified report

Descriptors: (*Fluorine compounds, Organic compounds), (*Surface properties, Fluorine compounds), Chemistry, State-of-the-art reviews, Surface-active substances, Polymers, Surface tension, Water, Halogenated hydrocarbons, Ethylenes, Aliphatic compounds, Coatings, Protective treatments, Adhesives, Adhesions, Organic solvents, Solids, Solutions, Esters, Carboxylic acids

With the advent of the highly fluorinated organic compounds, it has been possible to prepare surfaces having extremely low free surface energies, much lower than had previously been possible with hydrocarbon derivatives. Because of their low surface energies, fluorinated solids have the most nonwettable and nonadhesive surfaces known. It has been proved that only the outermost molecules of the surface of a solid need be highly fluorinated in order to achieve such low surface energies. In fact the most nonwetting surfaces studied to date were those covered with an adsorbed monolayer of closely packed perfluoro acids, with the perfluoromethyl (-CF3) groups outermost. It has likewise been found that surface-active agents containing perfluorocarbon terminal groups will lower the surface tension of water far below the values obtainable with hydrocarbon-type wetting agents. Certain fluorinated hydrocarbon derivatives have also been synthesized that show very high surface activity in a wide variety of organic liquids, the extent of surface activity being dependent upon the organophilic-organophobic balance in the fluorine-containing amphipathic molecule. (Author)

AD-624 712 Fld. 7/4
CFSTI Prices: HC $1.00 MF $0.50
UPPSALA UNIV (SWEDEN)
NON-NEWTONIAN FLOW OF SOLUTIONS OF HIGH MOLECULAR WEIGHT POLYMER IN EXTREMELY VISCOUS SOLVENTS.
Summary technical rept. for 1 Feb- 1 Oct 64,
by Ragner Stromberg. Oct 65, 20p. Contract AF61 (052)-392 Proj. AF-7342 Task 734203 ML TR-65-82

Unclassified report

Descriptors: (*Polymers, Viscosity), Solutions, Solvents, Molecular weight, Shear stresses, Polyethylene plastics, Ethylene oxide

Recent theoretical work has predicted that the intrinsic viscosity of very long chain polymers in viscous solvents should increase with increasing shear gradient. Highly viscous solvents are required to develop sufficient shearing forces to overcome the inner viscosity (rigidity) of the polymer coil. This report concerns experimental work directed toward examination of the theory. Two polyphenylene oxide fractions, 1290,000 and 345,000 molecular weight, in pyralene and two polyisobutylene fractions, 600,000 and 1850,000 molecular weight, in paraffin oil, were measured in precision equipment which covered five velocity gradient ranges. The maximum shear stresses for pure water, paraffin oil and pyralene are 640, 2600 and 3900 dynes/sq cm. In these solvents no increase in intrinsic viscosity, as predicted, was observed. Although more information is required before the theory can be fully evaluated, it is suggested that the proposed treatment of gradient dependence does not take into account sufficiently the inner viscosity of the macromolecular coil and anisotropic hydrodynamic interaction. (Author)

AD-624 714 Fld. 7/4, 20/9
CFSTI Prices: HC $1.00 MF $0.50
HARVARD COLL OBSERVATORY CAMBRIDGE MASS
LINE-REVERSAL MEASUREMENTS OF EXCITATION AND ELECTRON TEMPERATURE IN A SHOCK TUBE.
Scientific rept.,
by W. R. S. Garton, W. H. Parkinson, and E. M. Reeves. Nov 65, 11p. Rept. no. scientific-8 Contract Nonr-1866 (48) Grant ,NsG-438

Unclassified report

Descriptors: (*Line spectrum, Plasma medium), (*Shock tubes, Temperature), (*Excitation, Plasma medium), Electrons, Ionization, Electron transitions, Calcium, Argon, Astrophysics

The spectral line-reversal method has been applied to determine population-temperatures within an (argoncalcium) plasma, generated by a reflected aerodynamic shock. The measurements have been made simultaneously on (a) normal bound-bound Ca I lines, (b) lines involving strongly autoionizing levels. The agreement of the two sets of values identifies the electron-temperature with the temperature characterizing the populations of the bound excited-states, giving improved confidence in the existence of complete thermal equilibrium in the reflected shock. (Author)

AD-624 719 Fld. 7/4, 20/2, 20/6
CFSTI Prices: HC $2.00 MF $0.50
PENNSYLVANIA UNIV PHILADELPHIA DEPT OF PHYSICS
RARE-EARTH-IRON EXCHANGE INTERACTION IN THE GARNETS. II-EXCHANGE POTENTIAL FOR YTTERBIUM.
Technical rept.,
by Peter M. Levy. Sep 65, 41p. Rept. no. tr-26 Contract Nonr-551 (36)

Unclassified report

Descriptors: (*Ytterbium, Ion exchange), (*Garnet, Anisotropy), (*Iron, Ion exchange), Ytterbium compounds, Potential theory, Band theory of Solids, Crystal lattices, Iron compounds, Rare earths, Partial differential equations

To determine the magnitude of the anisotropy of the ytterbium-iron (Yb-Fe) exchange interaction we have evaluated the exchange splittings of the lowest 2F (5/2) and 2F (7/2) doublets of ytterbium (Yb3+) in ytterbium iron garnet. By using the wave functions of Yb3+ in yttrium gallium garnet (those for YbIG are not known) these splittings are expressed in terms of ten parameters which characterize the anisotropy of the exchange interaction. As there are only six experimental splittings it is necessary to reduce the number of unknowns by assuming: (1) that the rare-earth-iron (RE-Fe) exchange interaction take place through the neighboring eight oxygen ions, and (2) (somewhat more uncertainly) that the rare-earth-oxygen (RE-O) exchange interaction si axial about the Re-O axis. This leads to expressing the exchange splittings in two sets of four exchange constants. A good four parameter fit of the experimental exchange splittings was found by adopting essentially zero values for the rare-earth-ferric ion exchange interactions that take place through the nearest neighbor oxygen ions (at 2.37A). (Author)

AD-624 802 Fld. 7/4, 7/2
RENSSELAER POLYTECHNIC INST TROY N Y DEPT OF CHEMISTRY
FORMATION OF EXCITED N0 AND N2 BY WALL CATALYSIS,
by Robert R. Reeves, Gene Mannella, and Paul Harteck. 19 Nov 59, 2p. Contract AF19 (604)-2205

Unclassified report

Availability: Published in Journal of Chemical Physics V32 N3 P946-7 Mar 1960. Copies to DDC users only.

Descriptors: (*Nitrogen compounds, Oxides), (*Nitrogen, Excitation), Luminescence, Atomic energy levels, Catalysis, Dissociation

AD-624 803 Fld. 7/4
CFSTI Prices: HC $1.00 MF $0.50
CHICAGO UNIV ILL INST FOR THE STUDY OF METALS
ZEEMAN SPLITTING OF NARROW LINES IN CRYSTALLINE MNF2, FEF2, AND COF2. EVIDENCE FOR SPIN-WAVE EXCITATIONS.
Technical rept.,
by Philip G. Russell, Donald S. McClure, and J. W. Stout. 1965, 9p. Rept. no. TR-19
Contract Nonr-2121 (13)

Unclassified report

Descriptors: (*Fluorides, Magneto-optic effect), (*Magneto-optic effect, Fluorides), (*Line spectrum, Fluorides), Manganese compounds, Iron compounds, Cobalt compounds, Magnetic properties, Atomic energy levels, Band theory of solids, Crystals, Electron transitions

The Zeeman splitting of narrow lines in the optical spectrum of crystals of MnF2, FeF2, and CoF2 was measured at 4.2 K and in applied magnetic fields to 170 kG. All of the transitions observed are intercombinations for which delta S ! -1. These crystals all have the rutile structure. The behavior of narrow lines in the 5450 A region of the MnF2 spectrum is shown as the external magnetic field is applied parallel to the c axis (z direction) of the crystals. The lines arise from transitions from the ground (6)A sub 1g state to the lowest (4)T sub 1g excited state and are at slightly lower energy than the vibronic band for this transition. Similar results for the 3800 A region of FeF2 are shown. In each case two magnetic dipole transitions, separated by 17.2/cm for MnF2 and 35.9/cm for FeF2 appear, followed at higher energies by electric dipole transitions. The latter do not split in the external magnetic field, in the case of MnF2, and split less than half as much as the magnetic dipole lines in the case of FeF2.

AD-624 831 Fld. 7/4
WISCONSIN UNIV MADISON THEORETICAL CHEMISTRY INST
INTERMOLECULAR FORCES,
by Joseph O. Hirschfelder. 1965, 17p. Contract PHS-GM-11315-01

Unclassified report

Availability: Published in Molecular Biophysics p325-42 1965. Copies to DDC users only.

Descriptors: (*Molecular association, Reviews), (*Chemical bonds, Reviews), Electrostatics, Polarization, Resonance, Valence, Chemical reactions, Magnetic fields, Relativity, Solvents

Contents: Direct electrostatic interactions; Polarization or induced electrostatic interactions; Dispersion or fluctuation interaction; Resonance interactions; Charge exchange interactions; Valence or chemical interactions; Magnetic and Relativistic interactions; Solvent effects.

AD-624 833 Fld. 7/4
ROCKETDYNE CANOGA PARK CALIF
ON THE NATURE OF UREY-BRADLEY FORCE CONSTANTS APPLICATION TO FOUR FIRST ROW IONS,
by E. C. Curtis. 22 Mar 65, 15p. Contract AF49 (638)-1135 AFOSR 65-2264

Unclassified report

Availability: Published in Journal of Molecular Spectroscopy V17 N1 P108-21 Jul 1965. Copies to DDC users only.

Descriptors: (*Ionization potentials, Molecular spectroscopy), (*Ions, Molecular properties), Force (Mechanics), Field theory, Vibration, Valence

A model for the Urey-Bradley repulsion force constants is given which consists partly of a dispersion and partly of an ionic force, resulting in -0.5F I F' < -0.1F. It was expected that F' would be near the lower limit in the examples chosen, that is, crystals containing the ions CO3 (2+), NO3 (-), NO2 (-), and NH4 (+). The calculations showed that part of the repulsion was indeed the result of electrostatic forces but that an appreciable part of the charge formally indicated on ions in these crystals does not actually exist. (Author)

AD-624 250 See Fld. 8/1

AD-624 303 See Fld. 8/1

AD-624 317 See Fld. 20/5

AD-624 324 See Fld. 7/2

AD-624 327 See Fld. 20/4

AD-624 328 See Fld. 20/4

AD-624 348 See Fld. 7/2

AD-624 375 See Fld. 20/9

AD-624 385 See Fld. 8/1

AD-624 402 See Fld. 7/2

AD-624 405 See Fld. 7/3

AD-624 429 See Fld. 8/10

AD-624 492 See Fld. 7/3

AD-624 540 See Fld. 21/9

AD-624 542 See Fld. 20/13

AD-624 563 See Fld. 20/9

AD-624 564 See Fld. 20/9

AD-624 568 See Fld. 3/3

AD-624 657 See Fld. 8/1

AD-624 680 See Fld. 6/5

AD-624 687 See Fld. 19/1

AD-624 713 See Fld. 3/2

AD-624 789 See Fld. 20/9

AD-624 846 See Fld. 11/7

8. EARTH SCIENCES AND OCEANOGRAPHY

AD-624 420 Fld. 8
SCRIPPS INSTITUTION OF OCEANOGRAPHY UNIV OF CALIFORNIA LA JOLLA
AN ASPECT OF EUPHAUSIID ECOLOGY REVEALED BY ECHO-SOUNDING IN A FJORD,
by Brian P. Boden, and Elizabeth M. Kampa. 28 Feb 64, 21p. Contract Nonr-233 (31) Grant, NIH-NB-02841-04 Proj. NR-104-305
Unclassified report

Availability: Published in Crustaceana V9 Pt2 P155-73 1965. Copies to DDC users only.

Descriptors: (*Crustacea, British Columbia), (*Marine biology; Crustacea), (*Ecology, Crustacea), Estuaries, Aquatic animals, Stratigraphy, Ocean bottom sampling, Echo ranging, Pacific Ocean

In Saanich Inlet, British Columbia, Canada, information is sought concerning a sonic-scattering layer, in which the crustacean Euphausia pacifica Hansen is the most significant member of the planktonic component.

AD-624 640 Fld. 8, 6/3
CFSTI Prices: HC $1.00 MF $0.50
NAVAL OCEANOGRAPHIC OFFICE WASHINGTON D C
SEA SNAKES,
by V. P. Shuntov. 1965, 4p. Rept. no. trans-278 TT 65-64772
Unclassified report

(Morskie Zmei) Trans. of Priroda (USSR) v52 n3 p103-4 1963.

Descriptors: (*Marine biology, Reptiles), (*Reptiles, Marine biology), Aquatic animals, Distribution, Morphology (Biology), Adaptation (Physiology), Poisons, Toxins + antitoxins, USSR

AD-624 421 See Fld. 6/3

AD-624 422 See Fld. 6/3

8/1. BIOLOGICAL OCEANGRAPHY

AD-624 250 Fld. 8/1, 7/4
UNIVERSITY OF WESTERN ONTARIO LONDON DEPT OF CHEMISTRY
THE PHOTOLYSIS OF SOME ALPHA-SUBSTITUTED CYCLOHEXANONES,
by H. G. Ferguson, P. de Mayo, F. L. M.Pattison, and Y. Tabata. 8 Apr 63, 2p. Contract DRB-2020-29
Unclassified report

Availability: Published in Canadian Journal of Chemistry V41 P2099-2100. Copies to DDC users only.

Descriptors: (*Cyclohexanones, Photochemistry), Fluorine compounds, Fluorides, Esters, Canada

2-Fluoro-, 2-fluoro-4-methyl-, and 2-fluoro-3,5dimethyl - cyclohexanone were prepared and photolyzed in methanol. Vapor phase chromatography revealed that methyl 6-fluorohexanoate producedin the photolysis of 2-fluorocyclohexanone, but in insignificant yield. No trace of the 2-fluoro ester, could be detected. An ester, presumably omega-substituted because of the ester carbonyl frequency was similarly obtained in small yield from the 3,5- and 4-methyl derivatives. The photolysis of 2formyloxy cyclohexanone was also investigated. Irradiation of 2-formyloxy-cyclohexanone did give cyclohexanone, but in yields (up to 30%) inferior to those obtained by other methods available for reduction of the ketol.

AD-624 303 Fld. 8/1, 7/4, 7/3
CFSTI Prices: HC $1.00 MF $0.50
NAVAL RESEARCH LAB WASHINGTON D C
PHOTODEGRADATION OF HIGH POLYMERS. PART VII - PHOTOLYSIS OF POLY (N-BUTYL METHACRYLATE) IN VACUUM,
Interim rept.,
by L. G. Isaacs, and R. B. Fox. 14 Oct 65, 21p. Rept. no. nrl-6339
Unclassified report

See also AD-617 952.

Descriptors: (*Acrylic resins, Photochemistry), (*Photochemistry, Acrylic resins), Polymers, Degradation, Vacuum, Films, Crosslinking (Chemistry), Esters, Free radicals, Temperature, Ultraviolet radiation, Communication satellites (Passive)

The photodegradation of poly (n-butyl methacrylate) from three sources has been studied. At 100 C, samples lost 90 to 95% of their original weight after about 30 hr of exposure and left about 4% insoluble polymer. At 50 C, about half as much material was volatilized, and one fourth was left insoluble. Most of the volatile products consisted of n-butul methacrylate (monomer), n-butyl formate, and 1-butene; lesser amounts of n-butyraldehyde, 1-butanol, n-butane, and carbon dioxide were also produced. Increasing the temperature increased the relative yield of monomer, and, except for 1-butene, decreased the relative yields of the other products. Although films degraded at 100 C showed nearly complete volatilization, a sample exposed at 50 C and then re-exposed at 100 C showed little additional volatilization at the higher temperature. This suggests that more crosslinking occurs at the lower temperature. The volatile products other than monomer are accounted for by cleavage reactions of the pendent ester groups, with subsequent hydrogen abstraction or disproportionation of the free radicals. Monomer results from main chain cleavage followed by depolymerization; this reaction predominates at the higher temperature. (Author)

AD-624 363 Fld. 8/1
VICTORIA UNIV WELLINGTON (NEW ZEALAND) DEPT OF CHEMISTRY
MOSSBAUER STUDIES OF CHEMICAL BONDING,
by J. F. Duncan, and R. M. Golding. 1965, 24p. Contract AF-AFOSR-27-63 Proj. AF-9710 Task 971003
AFOSR 65-1651
Unclassified report

Availability: Published in Quarterly Reviews, V19 N1 P36-56 1965. Copies to DDC users only.

Descriptors: (*Chemical bonds, Mossbauer effect), (*Mossbauer effect, Chemical bonds), (*Gamma-ray spectroscopy, Chemical bonds), Nuclear energy levels, Excitation, Gamma emission, Chemical analysis, Magnetic fields, Electric fields, Isotopes, Resonance, Iron compounds, New Zealand

Mossbauer spectroscopy, the study of gamma-ray absorption or emission between the nuclear ground and excited states, is discussed relative to its pertinence to chemical analysis. The fundamental and theoretical aspects are first discussed, especially as they pertain to internal magnetic fields, electric-field gradients, isomeric or chemical shift, and temperature-dependence. Such practical aspects as experimental apparatus, the number of suitable isotopes, the prevention of loss in resonant gamma-ray energy, and the experimental features of the Mossbauer spectra are also considered. Chemical applications of Mossbauer spectroscopy are reviewed and several examples of its use in chemical works are presented. (Author)

AD-624 365 Fld. 8/1, 18/2
CALIFORNIA UNIV LOS ANGELES
PERFATORY CHAPTER: THIRTY YEARS OF ATOMIC CHEMISTRY,
by W. F. Libby. 1964, 15p. Contract AF-AFOSR-245-64 AFOSR 65-1667
Unclassified report

Report includes, Berkeley Radiochemistry.

Availability: Published in Annual Review of Physical Chemistry, V15 P1-12 1964. Copies to DDC users only.

Descriptors: (*Radiochemistry, Reviews), (*Radiation chemistry, Reviews), Tracer studies, Transuranic elements, Radioactivation analysis, Natural radioactivity, Nuclear physics

A review is given of the last 30 years in the use of nuclear phenomenology and techniques in chemistry and of the application of chemical methods to nuclear physics. Also included is an eulogy to Wendell Latimer.

AD-624 366 Fld. 8/1, 18/2
CALIFORNIA UNIV LOS ANGELES DEPT OF CHEMISTRY
NATURE OF THE CHEMICAL REACTIVITY OF RADIOBROMINE ATOMS PRODUCED BY ISOMERIC TRANSITION,
by A. R. Kazanjian, and W. F. Libby. 30 Dec 64, 9p. Contract AF-AFOSR-245-64 AFOSR 65-1668
Unclassified report

Availability: Published in Annual Review of Physical Chemistry, V15 P1-12 1964. Copies to DDC users only.

Descriptors: (*Radioactive isotopes, Bromine), (*Bromine compounds, Chemical reactions), (*Halogenated hydrocarbons, Bromides), Gammaneutron reactions, Nuclear isomers, Isotopic transitions, Recoil atoms

The hot-atom chemistry of n-propyl bromide was examined. By comparing the differences and similarities of the (n, gamma ray) and isomeric transition processes, an over-all theory is evolved which accounts for the identical results produced by both nuclear processes in the solid and liquid alkyl halides. The charge developed by the Auger process following internal conversion causes the molecule to explode and gives a neutral recoiling atom which then reacts as the (n, gamma ray) atoms. The neutralization after rupture is rapid in the solid and liquid. In the gas this is not so and it has been possible to demonstrate experimentally a difference between the retentions in the gas phase. (Author)

AD-624 368 Fld. 8/1, 8/5
CALIFORNIA UNIV LOS ANGELES DEPT OF CHEMISTRY
POSITIVE-ION CHEMISTRY: HIGH YIELDS OF HEAVY HYDROCARBONS FROM SOLID METHANE BY IONIZING RADIATION,
by Donald R. Davis, and W. F. Libby. Apr 64, 5p. Contract AF-AFOSR-245-64 AFOSR 65-1666
Unclassified report

Availability: Published in Science, V144 N3621 P991-2 May 22 1964. Copies to DDC users only.

Descriptors: (*Methane, Polymerization), (*Hydrocarbons, Synthesis (Chemistry)), (*Polymerization, Radiation chemistry), (*Radiation chemistry, Hydrocarbons), Solidified gases, Gamma rays, Ionization, Ultraviolet radiation, Meteors, Geochemistry

At 77K solid methane is polymerized rapidly and efficiently to heavy hydrocarbons by cobalt-60 gamma rays. The product is a viscous oil consisting mainly of saturated and highly branched hydrocarbons containing an average of about 20 carbon atoms per molecule. This would seem to be evidence for positive-ion chemical reactions in the solid state analogous to those previously reported to occur in the gaseous state at pressures above 0.01 mm-Hg. It would thus appear that the solar ionizing ultraviolet radiation (about 1 erg/sq cm/sec at the earth) must polymerize methane at an appreciable rate under many likely conditions. (Author)

AD-624 385 Fld. 8/1, 7/4, 20/12
DUKE UNIV DURHAM N C DEPT OF PHYSICS
PROTON-DEUTERON EXCHANGE OF THE RADICAL IN IRRADIATED SINGLE CRYSTALS OF DL-ASPARTIC ACID: EFFECT OF THE CRYSTAL FIELD ON THE CHEMICAL REACTION,
by Ichiro Miyagawa, and Koichi Itoh. 16 Jun 65, 1p. Contract DA-ARO (D)-31-124-G428 AROD 4131:10

Unclassified report

Availability: Published in the Journal of Chemical Physics, V43 N8 P2915-6 Oct 15, 1965. Copies to DDC users only.

Descriptors: (*Aspartic acid, Exchange reactions), (*Single crystals, Exchange reactions), (*Exchange reactions, Tracer studies), Free radicals, Protons, Deuterons, Nuclear spin resonance, Radiation chemistry, Stereochemistry, Heat of activation, Reaction kinetics

Proton-deuteron exchange reaction of the radical in irradiated single crystals of deuterium-substituted DLaspartic acid, DOOCCH2CH (ND2).COOD investigated in the range from room temperature to 150C. The protons of the radical DOOCCH2CHCOOD, exchanged with deuterons of the host crystal; the reaction rate increased with increasing temperature; when the irradiated crystal was heated to 150C for 3 h, practically all the radicals in the crystal were converted to DOOCCD2CDCOOD. The observed stereospecific exchange demonstrates that the crystal field profoundly influences chemical reactions in the organic solid state. (Extracted)

AD-624 406 Fld. 8/1, 7/3
BRITISH COLUMBIA UNIV VANCOUVER DEPT OF CHEMISTRY
PHOTOLYSIS OF NITRATE ESTERS, II. SOLUTION PHOTOLYSIS OF ARALKYL NITRATE ESTERS: KINETICS, ESR SPECTRA, AND PHOTOPRODUCTS,
by I. G. Csizmadia, and L. D. Hayward. 3 Feb 65, 15p.

Unclassified report

Availability: Published in Photochemistry and Photobiology V4 P657-71 1965. Copies to DDC users only.

Descriptors: (*Nitrates, Photochemistry), (*Organic nitrogen compounds, Photochemistry), (*Photochemistry, Nitrates), Esters, Solutions, Decomposition, Reaction kinetics, Electron spin resonance, Quantum statistics, Aromatic compounds, Polycyclic compounds, Glycols, Canada

Irradiation of benzyl nitrate, meso- and dl-hydrobenzoin dinitrates, and cis- and trans-1,2-acenaphthenediol dinitrates in benzene solutions 0.02M in nitrato groups at 265-313 millimicrons decomposed the esters with a quantum yield of 0.4 !0.2 in reasonable agreement with earlier work on the gas-phase photolysis of ethyl nitrate. An important primary process was ArRCHONO2+ photon yields ArRCHO. + NO2, although ArRCHONO2+ photon yields ArRCHONO+O was not excluded. In secondary reactions solvent benzene was oxidized and nitrated, aldehydes were formed from the nitrate esters, and nitric oxide was evolved. The higher quantum yields of the photodecomposition in ethanol (0.8=0.3) and ether (3=1) solutions were interpreted in terms of a chargetransfer state similar to that found with nitroalkanes in these solvents. Acetaldehyde was produced in a rapid secondary reaction in alcohol solutions at 25K and at 77K, NO2, was identified as an intermediate from the ESR spectrum. No stereospecificity was detected in a comparison of rates, photoproducts, and ESR spectra for the stereoisomers. The overall results indicated interrather than intramolecular migration of oxy-nitrogen groups in secondary reactions. (Author)

AD-624 593 Fld. 8/1, 11/9
CFSTI Prices: HC $1.00 MF $0.50
NAVAL RESEARCH LAB WASHINGTON D C
PHOTODEGRADATION OF HIGH POLYMERS IN SOLUTION. PART II. SOLVENT EFFECTS IN THE PHOTOLYSIS OF POLYSTYRENE.
Interim rept.,
by T. R. Price, and R. B. Fox. 21 Oct 65, 21p. Rept. no. nrl-6328
Proj. RR-001-02-43-4801

Unclassified report

See also AD-606 392.

Descriptors: (*Styrene plastics, Degradation), (*Polymers, Photochemistry), (*Photochemistry, Polymers), Solutions, Ultraviolet radiation, Viscosity, Spectrum (Visible + ultraviolet), Crosslinking (Chemistry), Solvents, Quantum statistics, Free radicals, Dissociation

Polystyrene photolysis in solution under ultraviolet irradiation by low-pressure and medium-pressure mercury lamps was studied in the presence and absence of air at about 25C. Both intrinsic viscosity and ultraviolet spectral changes were followed during the exposures. In the absence of air, crosslinking is a major process; a measurable decrease in viscosity occurred only in dioxane and carbon tetrachloride and, at sufficiently high doses, insoluble material was formed. In the presence of air, viscosity decreases were observed in all solvents; apparent quantum yields for random scission ranged from 0.0002 in cyclohexane to 0.11 in carbon tetrachloride. In the latter solvent, quantum yield decreased with increasing polymer concentration and intensity of absorbed radiation. Carbon tetrachloride sensitized the degradation in cyclohexane, and small amounts of cyclohexane acted as an inhibitor in carbon tetrachloride solutions. Spectral changes were similar to those observed earlier for poly (alpha-methylstyrene). Mechanisms are suggested. (Author)

AD-624 657 Fld. 8/1, 7/3, 7/4
CFSTI Prices: HC $4.00 MF $0.75
OHIO STATE UNIV COLUMBUS
THE MECHANISM OF THE TRITIUM BETA-RAY INDUCED EXCHANGE REACTIONS OF DEUTERIUM WITH METHANE AND ETHANE IN THE GAS PHASE.
Master's thesis,
by Robert Henry Lawrence,Jr.. 1965, 111p.
Contract AF33 (608)-1262

Unclassified report

Descriptors: (*Exchange reactions, Reaction kinetics), (*Deuterium, Exchange reactions), (*Methane, Radiation chemistry), (*Alkanes, Radiation chemistry), Tritium, Beta particle reactions, Gases, Heat of activation, Chemical analysis, Deuterated compounds

A study was made of the mechanism responsible for the exchange reactions occurring at pressures ranging from 0.85 to 0.98 atmospheres in the deuterium: methane system composed of 98.5% TD/D2 (1:100) and 1.5% CH4 between 77 and 500K. The significance of this system lies in the abundance of kinetic data potentially available regarding atomic reactions induced by hydrogen atoms and ionic reactions involving proton transfer. It is shown that the application of this method to the hydrogen:methane and hydrogen:ethane systems investigated has made possible a complete determination of the mechanism and evaluation of the corresponding kinetic parameters.

AD-624 482 **See Fld. 11/9**

8/2. CARTOGRAPHY

AD-624 839 **See Fld. 14/5**

8/3. DYNAMIC OCEANOGRAPHY

AD-624 815 . Fld. 8/3
CFSTI Prices: HC $4.00 MF $1.25
WOODS HOLE OCEANOGRAPHIC INSTITUTION MASS
A COMPILATION OF MOORED CURRENT METER OBSERVATIONS, VOLUME I.
Technical rept.,
by Ferris Webster, and N. P. Fofonoff. Aug 65, 118p. Rept. no. ref-65-44
Contract Nonr 3351 (00) ,Nonr-2196 (00) Proj. NR-083-501 ,NR-083-004

Unclassified report

Availability: Microfiche only after original copies exhausted.

Descriptors: (*Ocean currents, Measurement), Flowmeters, Oceanographic equipment, Mooring buoys, Data storage systems, Oceanographic data, Maps

Summaries of current measurements made with Richardson current meters at three moored stations in the Western North Atlantic are presented. Averaged quantities are presented in the form of computer-plotted curves. (Author)

AD-624 826 **See Fld. 8/10**

8/4. GEOCHEMISTRY

AD-624 474 Fld. 8/4, 12/1
CFSTI Prices: HC $3.00 MF $0.75
AERONAUTICAL CHART AND INFORMATION CENTER ST LOUIS MO
APPLICATIONS OF SPHERICAL HARMONICS TO GEODETIC PROBLEMS,
by James L. Dragg. Feb 63, 82p. Rept. no. ACIC-RP-15

Unclassified report

Descriptors: (*Geophysics, Special functions (Mathematical)), (*Special functions (Mathematical), Harmonic analysis), (*Gravity, Geophysics), Geodesics, Potential theory, Geometry, Spheres, Satellites (Artificial)

Investigation is summarized into the development of the Earth's gravitational potential in spherical harmonics and the geometric significance of the lower degree terms. The potential is developed to yield expressions for the geopotential, spheropotential, gravity anomalies, geoid heights, and deflection components in spherical harmonics. Satellite orbital data was used to derive harmonic coefficients. The theory, method, and formulas used for determining the coefficients of the second and fourth zonal harmonics are presented. The Earth's flattening is also derived from the second degree zonal harmonic with the assumption that the shape is that of a uniform ellipsoid of rotation. A complete example plus an error analysis of the computation of the coefficients and flattening are included. Determination of the ellipticity of the equator, balancing the gravity field, normalized harmonics, and resonant orbits are discussed. (Author)

AD-624 475 Fld. 8/4, 3/3, 22/2
CFSTI Prices: HC $1.00 MF $0.50
JOHNS HOPKINS UNIV SILVER SPRING MD APPLIED PHYSICS LAB
NON-ZONAL HARMONIC COEFFICIENTS OF THE GEOPOTENTIAL FROM SATELLITE DOPPLER DATA,
by W. H. Guier, and R. R. Newton. Nov 63, 23p. Rept. no. tg-520
Contract NOw-62-0604-c
Unclassified report

Descriptors: (*Celestial mechanics, Satellites (Artificial)), (*Satellites (Artificial), Celestial mechanics), (*Geodesics, Satellites (Artificial)), Gravity, Isostatic change, Perturbation theory, Orbital trajectories, Satellite tracking systems, Doppler systems, Geophysics

AD-624 700 Fld. 8/4, 8/10
CFSTI Prices: HC $3.00 MF $0.75
NAVAL ORDNANCE PLANT YORK PA
OFFSHORE GRAVITY AND MAGNETIC ANOMALIES IN THE SANTA BARBARA CHANNEL, CALIFORNIA.
Research rept.,
by Ronald von Huene, and James B. Ridlon. Dec 65, 58p. Rept. no. nots-TP-3917
Proj. R360-FR-106/2161/R011-01-01,RU222E-000/216-1/R004-03-01 NAVWEPS 8961
Unclassified report

Descriptors: (*Marine geophysics, California), (*Geodesics, California), (*Gravity, Pacific Ocean), (*Terrestrial magnetism, Pacific Ocean), Hydrographic surveying, Tables

8/5. GEODESY

AD-624 368 See Fld. 8/1

8/7. GEOLOGY AND MINERALOGY

AD-624 493 Fld. 8/7
LAMONT GEOLOGICAL OBSERVATORY PALISADES N Y
AN APPROXIMATE METHOD OF ESTIMATING SHEAR VELOCITY FROM SPECIFIC HEAT,
by Orson L. Anderson. 16 Apr 65, 5p. Rept. no. lgo-839
Contract AF49 (638)-1355
Unclassified report

Availability: Published in Journal of Geophysical Research V70 N18 P4726-8 Sep 15 1965. Copies to DDC users only.

Descriptors: (*Shear stresses, Petrology), (*Petrology, Shear stresses), (*Specific heat, Petrology), Minerals, Rock (Geology), Acoustics, Calorimetry, Geophysics

The purpose of this letter is to point out that the isotropic shear velocity v of inorganic materials such as of minerals and rocks can be estimated from lowtemperature specific heat measurements.

AD-624 844 Fld. 8/7, 8/11
CFSTI Prices: HC $5.00 MF $1.00
SAINT LOUIS UNIV MO
THE DETERMINATION OF CRUSTAL THICKNESS FROM THE SPECTRUM OF P WAVES.
Scientific rept.,
by Luis M. Fernandez. Sep 65, 186p. Rept. no. scientific-13
Contract AF19 (604)-7399 ,ARPA Order-292
Proj. AF-8652 ,Vela-Uniform Task 865201 ,2
AFCRL 65-76
Unclassified report

Descriptors: (*Seismology, Lithosphere), (*Lithosphere, Seismology), Seismic waves, Propagation, Geophysics, Earth models, Thickness, Determination

The layers of the earth's crust act as a filter with respect to seismic energy arriving at a given station. Consequently the motion recorded at the earth's surface depends not only on the frequency content of the exciting seismic energy and on the response characteristics of the recording instrument, but also on the elastic parameters and thicknesses of the layers. This latter dependence is the basis for a method of investigating the structure of the crust.

AD-624 294 See Fld. 4/1

AD-624 629 See Fld. 8/11

8/10. PHYSICAL OCEANOGRAPHY

AD-624 429 Fld. 8/10, 7/4
CFSTI Prices: HC $1.00 MF $0.50
NAVAL RESEARCH LAB WASHINGTON D C
ADSORPTION OF SURFACE-ACTIVE MATERIAL AT THE SURFACE OF SEA-WATER SAMPLES FROM THE BAY OF PANAMA.
Interim rept.,
by Neldon L. Jarvis. 15 Oct 65, 23p. Rept. no. NRL-6325
Proj. RUDC-4B-000/652-1/F001/99-01
Unclassified report

Descriptors: (*Surface-active substances, Sea water), (*Sea water, Surface-active substances), (*Adsorption, Monomolecular films), (*Monomolecular films, Adsorption), Bays, Panama, Oceans, Surface tension

A great variety of surface-active compounds are known to exist in the sea. Under proper environmental conditions, they can adsorb at the surface of the sea, forming the so-called 'slicks' that are often observed. The presence of these adsorbed molecules in the interface can cause significant changes in other surface properties besides the damping of capillary waves. Because of their influence on the properties of the sea surface, a study was made of the rate at which these surface-active molecules can accumulate at the water/ air interface. Surface tension and surface potential measurements were used to detect the presence of adsorbed material at the surface of sea-water samples. The samples used in the present study were from the Bay of Panama. It was found that periods as long as several hours may be required for sufficient material to adsorb to cause a significant decrease in the surface tension of an undisturbed water sample. The rate of adsorption increased remarkably, however, when a stream of air bubbles was passed through the water, or when the water was stirred vigorously. It was also found that in the Bay of Panama the concentration of surface-active material was rather constant with depth from the surface few inches to a depth of at least 80 ft. Only the very thin layer of water at the interface showed a significantly greater concentration of surface-active material. The results of this study are in good agreement with a similar study of sea-water samples collected near La Jolla, California. (Author)

AD-624 466 Fld. 8/10
CFSTI Prices: HC $4.00 MF $1.00
METEOROLOGICAL AND GEOASTROPHYSICAL ABSTRACTS WASHINGTON D C
BIBLIOGRAPHY ON PHYSICAL OCEANOGRAPHY OF THE INDIAN OCEAN.
Special bibliographies,
by Parkash Samuel. Jun 65, 138p. Rept. no. oceanography Contribution-2
Contract N62306-1145
Unclassified report

Descriptors: (*Oceanology, Indian Ocean), (*Indian Ocean, Oceanographic data), Physical properties, Bibliographies

The scope of this bibliography is limited to the different aspects of physical oceanography, viz.: temperature, density, salinity, chemical composition, waves, currents, circulation, methods of measurements, instruments, etc. Papers on bottom topography, geology and biology have been excluded. Material on the weather and climate of the Indian Ocean, of its islands and of the Indian Subcontinent has been reserved for future bibliographies.

AD-624 826 Fld. 8/10, 8/3
CFSTI Prices: HC $4.00 MF $0.75
SCRIPPS INSTITUTION OF OCEANOGRAPHY UNIV OF CALIFORNIA LA JOLLA
OCEANIC RESEARCH.
Progress rept: Jul 64-Jun 65.
1 Nov 65, 114p. Rept. no. sio-Reference-65-17
Contract Nonr-2216 (23) ,Nonr-2216 (12) Proj. NR-083-005 ,NR-083-502
Unclassified report

Descriptors: (*Oceanology, Scientific research), Oceans, Physical properties, Chemical properties, Marine geology, Sedimentation, Ocean bottom topography, Tides, Ocean currents, Marine biology, Oceanographic equipment, Marine engineering

Contents: Physical and chemical oceanography; Submarine geology--geomorphology; Submarine geology--bottom materials; Interaction studies-wave and sediment interaction; Interaction studies-water mass and sediment identification from marine life; Oceanographic engineering.

AD-624 291 See Fld. 7/4

AD-624 292 See Fld. 7/4

AD-624 294 See Fld. 4/1

AD-624 454 See Fld. 17/7

AD-624 700 See Fld. 8/4

8/11. SEISMOLOGY

AD-624 453 Fld. 8/11
CFSTI Prices: HC $1.00 MF $0.50
LAMONT GEOLOGICAL OBSERVATORY PALISADES N Y
SUPPORT OF VISITING SEISMOLOGISTS.
Final rept. 1 Mar 62-31 Aug 65,
by John T. Kuo. 1 Sep 65, 12p. Contract AF-AFOSR-62-303 ,ARPA Order-292-62 Proj. AF-8652
Unclassified report

Descriptors: (*Seismology, Scientific personnel), (*Scientific personnel, Seismology), Japan, Great Britain, Denmark, Scientific organizations, Scientific research, Earthquakes, Nuclear explosions, Identification systems

During the past three years, nine visiting seismologists from Japan, England and Denmark have participated in a program of research at Lamont. During their stay here, they worked either jointly with the Lamont seismology staff or individually on many important problems, some of which directly bear on the detection of explosions and earthquakes and some of which are fundamental enough to offer wide application to the basic understanding of the properties of the earth's crust, the mantle and the core, and the earth as a whole. As a result of their research, progress was made in earthquake prediction-considering earthquakes as statistical events in a stochastic process; a more detailed understanding of the travel times of body waves through North America for both nuclear explosions and earthquakes; the theoretical investigation of wave propagation through complicated structures, such as a corrugated interface and a medium with a hyperbolic type of interface; and a detailed understanding of the dissipation factor 1/Q both in the upper and the lower mantle and in the core. These findings are closely related to

the problems of location of seismic events and of differentiation of explosions from earthquakes. (Author)

AD-624 547 Fld. 8/11, 18/3
CFSTI Prices: HC $1.00 MF $0.50
CALIFORNIA INST OF TECH PASADENA SEISMOLOGICAL LAB
SEISMIC RESULTS FOR GNOME AS OBSERVED BY THE CALTECH NETWORK,
by Gilbert Dewart. 1965, 8p. Contract AF49 (638)-910 Proj. AF-8652 AFOSR 65-2254
Unclassified report

Descriptors: (*Seismology, Nuclear explosions), (*Nuclear explosions, Seismology), Underground explosions, Explosion effects, Seismic waves, Propagation, Lithosphere, Geophysics

The underground nuclear explosion Gnome was recorded at several stations of the Caltech network with P amplitudes as large as or smaller than reported by Romney for Logan and Blanca. Since large amplitudes were reported for propagation to the east the hypothesis is advanced that a more severe shadow zone effect exists for propagation to the west due to different structure of the mantle in the low velocity layer. (Author)

AD-624 629 Fld. 8/11, 8/7
CFSTI Prices: HC $1.00 MF $0.50
CALIFORNIA UNIV LOS ANGELES INST OF GEOPHYSICS AND PLANETARY PHYSICS
CRUSTAL STRUCTURE IN THE WISCONSIN AREA,
by L. B. Slichter. 31 Oct 51, 23p. Contract N9onr-86200
Unclassified report

Descriptors: (*Seismology, Wisconsin), (*Structural geology, Wisconsin), Geophysics, Geology, Underground explosions, Seismic waves, Propagation, Lithosphere

AD-624 844 See Fld. 8/7

8/13. SOIL MECHANICS

AD-624 659 Fld. 8/13, 13/13, 11/7
CFSTI Prices: HC $3.00 MF $0.75
GEORGIA INST OF TECH ATLANTA
THE EFFECT OF CHEMICAL WETTING AGENTS ON THE COMPACTION OF CLAY AND SILT SOILS.
Master's thesis,
by Henry Garnett Shirley. Oct 65, 75p. Contract AF33 (608)-1234
Unclassified report

Descriptors: (*Surface-active substances, Soil mechanics), (*Soil mechanics, Surface-active substances), (*Silt, Soil mechanics), (*Clay, Soil mechanics), Soils, Density, Stabilization, Water, Organic compounds, Cleaning compounds, Acids, Engineering geology

Test results for the four categories of admixtures tested (amphoteric, anionic, cationic and nonionic) showed that increases in percentage of admixture of all surfactants caused an increase in density of the clay soil. The most effective surfactants were the anionic and nonionic types and the least effective were the cationic and amphoteric types. The largest increase in density occurred at percentage admixtures between 0.25 and 0.50 per cent. The average increase at these percentages was 9.0 per cent. Increased percentages of admixture above 0.50 per cent caused diminishing increases in density in all cases. The silty soil was quite insensitive to the addition of the surfactants to the compaction moisture. Increases in the percentage of admixture caused the density to decrease when the cationic and amphoteric surfactants were used. The maximum decrease was 3 per cent and occurred at a 3 per cent concentration of surfactant. The anionic and nonionic surfactants caused an increase in density of 2 per cent at a percentage admixture of 3 per cent. The largest increase or decrease in density occurred at a percentage admixture between 0.25 and 0.50 percent.

8/14. TERRESTRIAL MAGNETISM

AD-624 281 Fld. 8/14
CFSTI PricesMF $0.50
NAVAL OCEANOGRAPHIC OFFICE WASHINGTON D C HYDROGRAPHIC SURVEYS DEPT
PROTON MAGNETOMETER TEST ON BOARD A SURVEY AIRCRAFT,
by O. E. Avery, and F. N. Waits. 1965, 17p.
Rept. no. Informal-H-4-65
Unclassified report

Availability: Available from U. S. Naval Oceanographic Office, Washington, D. C. Hydrographic Surveys Dept.

Descriptors: (*Magnetometers, Protons), Airplanes, Terrestrial magnetism, Measurement, Fuselages, Helium

During June and July 1965, a proton magnetometer was tested on board NAVOCEANO's Project MAGNET NC-54R survey aircraft to determine the feasibility of operating an absolute reading instrument inside the fuselage, under survey conditions. A toroidal sensing element and standard compensation methods provided positive results during three air swings. Interference with the vector-measuring flux-gate elements on board the aircraft was no greater than one gamma during the proton polarizing intervals. The proton magnetometer values were compared with values obtained with a meta-stable helium magnetometer utilizing a towed sensor. The report describes the procedures used for testing and compensating the proton instrument and concludes that it is definitely feasible to obtain accurate total magnetic intensity values by operating a compensated proton magnetometer inside the aircraft. (Author)

AD-624 319 Fld. 8/14
CFSTI Prices: HC $4.00 MF $1.00
PENNSYLVANIA STATE UNIV UNIVERSITY PARK IONOSPHERE RESEARCH LAB
MORPHOLOGY OF HIGH LATITUDE GEOMAGNETIC DISTURBANCE AND CORRELATIONS WITH SATELLITE MAGNETIC FIELD MEASUREMENTS.
Scientific rept.,
by Donald H. Fairfield. 15 Oct 65, 134p. Rept. no. sr-253
Contract AF19 (628)-4014 Grant ,NSF -GP-2914
Proj. AF-8605 Task 8605-02
AFCRL 65-78
Unclassified report

Descriptors: (*Magnetic storms, Arctic regions), (*Terrestrial magnetism, Arctic regions), Solar wind, Ionic current, Ionsopheric disturbances, Airborne, Magnetometers, Scientific satellites, Geophysics, Magnetic fields

Arctic magnetograms were investigated in order to obtain an improved understanding of the morphology of high latitude magnetic disturbance. A comparison of the disturbance on different days shows that the ionosphere currents producing the disturbance are never very different from the DS current pattern but are also never extremely similar to one another. The direction of current across the polar cap is toward the sun in the summer but is rotated about 40 degrees clockwise (looking down on the north pole) in the winter. Arctic magnetograms were also compared to simultaneous Explorer XII measurements of the magnetic field in the transition region outside the magnetosphere. A southward field measured by the satellite was found to correspond to ground disturbance and a northward field to quiet periods. These results are interpreted as supporting the field reconnection mechanism of Dungey whereby the interplanetary magnetic field becomes attached to high latitude earth dipole lines, thus allowing the solar wind to drive the ionospheric current. (Author)

AD-624 507 Fld. 8/14, 4/1
CFSTI Prices: HC $1.00 MF $0.50
IOWA UNIV IOWA CITY DEPT OF PHYSICS AND ASTRONOMY
ON THE LOW LATITUDE 'NEGATIVE BAYS' IN THE AFTERNOON SECTOR.
Progress rept.,
by Syun-Ichi Akasofu. Nov 65, 18p. Rept. no. iu-65-35
Contract Nonr-1509 (06) Grant ,NSF-GP-272-1
Unclassified report

Descriptors: (*Terrestrial magnetism, Polar regions), Magnetic storms, Atmospheric electricity, Geophysics, Aurorae

It is argued that the so-called low latitude 'negative bay' in the afternoon sector is not caused by the return current from the polar electrojet, but is the field of the simultaneously growing asymmetric main phase decrease. (Author)

AD-624 776 Fld. 8/14, 4/1
CFSTI Prices: HC $1.00 MF $0.50
RAND CORP SANTA MONICA CALIF
A SURVEY OF MAGNETIC STORMS,
by E. H. Vestine. Dec 65, 17p. Rept. no. p-3270
Unclassified report

Descriptors: (*Magnetic storms, Theory), Solar wind, Aurorae, Terrestrial magnetism, Magnetohydrodynamics, Geophysics

Our knowledge of magnetic storms is briefly summarized. They arise from phenomena associated with the impact upon the geomagnetic field of streaming solar particles. The outer geomagnetic field is distorted by the solar wind into a configuration resembling the tail of a comet, with the earth as nucleus. Secondary phenomena in the trailing tail, probably, are important in causing associated phenomena such as the aurora and ionospheric storms, but the causative processes involved are not understood.

9/1. COMPONENTS

AD-624 297 Fld. 9/1, 17/2, 20/14, 20/5
CFSTI Prices: HC $2.00 MF $0.50
POLYTECHNIC INST OF BROOKLYN N Y MICROWAVE RESEARCH INST
JOINT SERVICES ELECTRONICS PROGRAM.
Final rept. 1 May 63-30 Apr 64.
11 Jun 65, 36p. Rept. no. pibmri-1278-65
Contract AF-AFOSR-453-63 AFOSR 65-1493
Unclassified report

Continuation of Contract AF18 (600)-1505; Grant AF-AFOSR-62-295.

Descriptors: (*Electronics, Scientific research), Electromagnetism, Microwaves, Microwave networks, Reports, Abstracts, Millimeter waves, Lasers, Electronic equipment, Communication theory, Feedback, Control systems, Circuits, Nonlinear systems

The research program includes the five areas of Electromagnetics, Microwave Networks and Techniques, Information Processes, Feedback and Control, and Nonlinear Circuits.

AD-624 309 Fld. 9/1
SYSTEMS INC ORLANDO FLA
PEM FOR FILTER, QUARTZ CRYSTAL, 112 MC, TYPE EL-FR (X-2) AND CRYSTAL UNIT, FILTER, QUARTZ TYPES CR- (XM-64)/U AND CR- (XM-65)/U.

Quarterly progress rept. no. 3, 1 May-30 Jul 65. 30 Jul 65, 29p. Contract DA-36-039-AMC-03638 (E)

Unclassified report

Availability: Reference only at DDC Hq after original copies exhausted. Not for sale.

Descriptors: (*Quartz, Resonators), (*Band-pass filters, Quartz), Crystals, Very high frequency, Narrowband, Electronics, Parametric amplifiers, Specifications, Performance (Engineering)

Equivalent circuit element values obtained for ten engineering models of CR-XM-64/U and CR-XM-65/U, Class 2 crystals are discussed. Crystal measurement equipment and procedures used are described. Crystal specifications for possible use in future procurement are presented. (Author)

AD-624 315 Fld. 9/1
CFSTI Prices: HC $7.00 MF $1.75
JOHNS HOPKINS UNIV SILVER SPRING MD APPLIED PHYSICS LAB
MICROELECTRONIC ENGINEERING. VOLUME I. FABRICATION TECHNOLOGY,
by William Liben. 1965, 356p. Contract NOw-62-0604-c NAVWEPS 16-1-533

Unclassified report

Descriptors: (*Microminiaturization (Electronics), Circuits), (*Circuits, Microminiaturization (Electronics)), Semiconductor devices, Films, Vapor plating, Vacuum apparatus, Etching, Encapsulation, Oxidation, Diffusion, Epitaxial growth, Electronic equipment, Anodic coatings, Sputtering, Semiconductors

This text will prepare the designer to design systems which can be fabricated using the presently available technology, and to follow the technical literature and thus keep abreast of the art as it develops. The first chapter places in perspective the field of Microelectronics and presents a highly simplified picture of the Microelectronics fabrication processes. This brief description will establish a framework for understanding the detailed material to be presented. The rest of the material is divided into a series of chapters on: (1) Solid state theory, designed to provide an adequate understanding of the behaviour of the devices used; (2) Fabrication technology of both the thin film and semiconductor microelectronic circuits.

AD-624 353 Fld. 9/1
RESEARCH LAB OF ÆLECTRONICS MASS INST OF TECH CAMBRIDGE
GLASS-COATED TUNGSTEN MICROELECTRODES,
by H. A. Baldwin, S. Frenk, and J. Y. Lettvin. 30 Apr 65, 2p. Contract DA-36-039-AMC-03200 (E) ,AF33 (615)-1747

Unclassified report

Availability: Published in Science, V148 N3676 P1462-4 Jun 11 1965. Copies to DDC users only.

Descriptors: (*Electrodes, Microminiaturization (Electronics)), (*Tungsten, Electrodes), (*Microminiaturization (Electronics), Electrodes), Ceramic coatings, Glass, Nerve cells, Nerve fibers, Electronic recording systems, Gold, Plating, Electrical impedance, Voltage

Unusually rugged microelectrodes for recording the activity of single nerve cells or fibers can be constructed from tapered tungsten wire on which a glass capillary is collapsed and surface bonded. Tip diameter in the range between 1 and 5 microns provides relatively low impedance detection of extracellular potentials. (Author)

AD-624 360 Fld. 9/1, 9/5
CFSTI Prices: HC $3.00 MF $0.75
MICROWAVE PHYSICS CORP GARLAND TEX
WIDEBAND ELECTRONICALLY TUNABLE FILTERS FOR VHF-UHF BAND.
Final rept. Apr 64-Mar 65,
by George H. Thiess. Nov 65, 92p. Contract AF30 (602)-3418 Proj. AF-5573 Task 557301 RADC TR-65-286

Unclassified report

Descriptors: (*Radiofrequency filters, Band-pass filters), (*Band-pass filters, Radiofrequency filters), Broadband, Very high frequency, Ultrahigh frequency, Resonators, Yttrium, Iron alloys, Garnet, Gallium alloys, Doping, Stability, Electrical properties, Ferromagnetic materials, Design, Wiring diagrams

Measurements of linewidth and Q have been made at frequencies from 90 Mc to 1000 Mc on 40 gallium substituted YIG resonators. Both spheres and discs were measured by a dynamic technique in which a resonator coupled energy between two coaxial lines. A complete description of the experimental setup is given and the data obtained is analyzed. The measured Q of gallium substituted YIG was found to be too low for practical filters at frequencies below 200 Mc at all temperatures from room temperature up to the curie temperature of the resonator. It is also predicted, from theoretical considerations, that at no other temperature higher than 10 K, is the Q likely to be any higher. It is recommended that further development of low-magnetization materials be carried out, with the special aim of producing materials free of gradients and with low cutoff frequencies. The insertion loss of the UHF filter was typically 3 to 4 db across the 300 Mc to 1000 Mc band. The VHF filter was approximately 4 db except at 90 Mc where it rose to 11.5 db. It is concluded that YIG filters are probably not practical at frequencies below 200 Mc unless improved materials become available. (Author)

AD-624 411 Fld. 9/1
CFSTI Prices: HC $1.00 MF $0.50
RADIO CORP OF AMERICA HARRISON N J MICROWAVE TUBE OPERATIONS DEPT
A LOW-NOISE, MULTIPLE-FUNCTION, X-BAND TRAVELING-WAVE TUBE.
Interim development rept. no. 11, 1 Apr-30 Jun 65,
by M. Milden. 30 Jun 65, 20p. Contract NObsr-87535 Proj. SR008-03-04 Task 9293

Unclassified report

See also AD-615 610.

Descriptors: (*Traveling-wave tubes, X band), (*Microwave amplifiers, X band), Vidio amplifiers, Wiring diagrams, Electron-tube parts, Helixes, Limiters, Design, Ceramic materials, Metals, Multiple operation, Performance (Engineering), Electron guns, Focusing

Work was done during the quarter on six items: the electron gun, focusing, the helix, the video section, tube VSWR, and the capsule. The overdrive performance in the linear section was improved by moving the attenuator toward the input, but further improvement in the limiter section is necessary. The use of tapered helices is contemplated. The helix design is capable of providing the necessary gain and bandwidth within the length specified for the tube. It was shown that the rf coaxial window assemblies can provide a VSWR of less than 1.3 to 1 from 7.0 to 11.0 Gc. The ppm focusing structure is adequate from both the beam-transmission and noise-figure aspects. The video section is mechanically sound but needs improvement in the processing of the dynodes. (Author)

AD-624 436 Fld. 9/1, 13/8
CFSTI Prices: HC $1.00 MF $0.50
INTERNATIONAL RESISTANCE CO PHILADELPHIA PA DOCUMENTED RELIABILITY DIV
PRODUCTION ENGINEERING MEASURES FOR HIGH RELIABILITY, FIXED, FILM, PRECISION RESISTORS.
Quarterly progress rept. no. 11, 1 Jul-30 Sep 65,
by Richard C. Wagner. 30 Sep 65, 14p. Contract DA-36-039-AMC-01461 (E)

Unclassified report

See AD-620 923.

Descriptors: (*Fixed resistors, Manufacturing methods), Reliability (Electronics), Films, Production

RNR57, RNR55 and RNR65 pilot run pieces are being processed utilizing the automatic equipment designed and built as part of the program. The original RNR60 pilot run pieces were discarded after it was discovered that the cap termination contact was below standard. Corrective action was taken and the pieces are being remade. (Author)

AD-624 465 Fld. 9/1
CFSTI Prices: HC $4.00 MF $0.75
VICTORY ENGINEERING CORP SPRINGFIELD N J
THIN FILM THERMISTORS.
Interim development rept. for 22 Jun-27 Sep 65. 27 Sep 65, 104p. Contract NObsr-93292 (1737) Proj. SR-00-03-02 Task 9598

Unclassified report

Descriptors: (*Thermistors, Films), (*Films, Thermistors), Semiconductor devices, Semiconducting films, Substrates, Band theory of solids, Microminiaturization (Electronics), Circuits, Coatings, Resistance (Electrical), Sputtering, Silicon, Doping, Metals, Oxides, Ceramic materials

The thermistors to be developed under this program are discrete components and of course may be adapted to a variety of applications besides microcircuitry. They may be used for surface temperature sensing, probes and any of the applications for which thermistors are used. The geometrical shape may be a film on a disk, rod or flat wafer, this again according to the application. The equipment with the exception of the R. F. Unit Power Supply is set up and operating. Various parameters have been established so that uniform coatings can be obtained at various rates of deposition. Rates of deposition have also been established for various elements and compounds as well as completion of a literature survey. Rates of deposition for volume resistivities of 300 ohm cm are somewhat slow, but very controllable, and are still useful. Ratios can be maintained from the bulk to film thickness down to 100 A. Surface resistivities are somewhat high as one might expect from so thin a film. Electrodes of gold have proven feasible and platinum leads (.001 diameter) have been successfully welded to these electrodes. (Author)

AD-624 490 Fld. 9/1, 9/2
MITRE CORP BEDFORD MASS COMPUTER AND DISPLAY DEVELOPMENT DEPT
USING AN ANALOG COMPUTER TO ANALYZE TRANSISTOR CIRCUIT PERFORMANCE,
by EnnTammaru. 1964, 8p. Contract AF33 (600)-39852 ESD TDR-63-17

Unclassified report

Availability: Published in Solid State Design P28-35 Oct 1964. Copies to DDC users only.

Descriptors: (*Transistors, Mathematical models), (*Analog computers, Mathematical models), Analysis, Circuits, Stability, Simulation

To obtain results in this analysis that are useful in predicting the operation of the circuit, complex models were found necessary. Thus, the analog method was used to continue the study. The circuit equations are solved by the analog computer and modifications in the model are carried out easily by altering the program. Changes in the stability regions then show the effects of the modification.

AD-624 513 Fld. 9/1, 13/8
CFSTI Prices: HC $2.00 MF $0.50
CORNELL-DUBILIER ELECTRONICS DIV FEDERAL PACIFIC ELECTRIC CO NORWOOD MASS
PRODUCTION ENGINEERING MEASURE FOR CAPACITORS, FEED-THROUGH, SOLID ELECTROLYTE TANTALUM PELLET.
Quarterly rept. no. 6, 1 Jul-30 Sep 65,
by W. G. Bailey. 30 Sep 65, 40p. Contract DA-36-039-AMC-03630 (E)
Unclassified report

See also AD-619 154.

Descriptors: (*Tantalum capacitors, Manufacturing methods), Aging (Materials), Quality control, Life expectancy, Electrolytes, Solids, Particles, Electrical impedance

Low impedance aging of 1000 hours minimum was completed on Lot E preproduction samples. The yield (based on 200 anode starts) was 80%. Quality Control started qualification testing, per Table VI of SCL-6423, except that the life test was to be conducted directly off of lead-acid storage batteries. Group I, II, and III tests have been completed and there are no failures. Group II testing is in process. Group V, testing (Life Test) experienced an overheating of the life test oven due to a faulty thermostat at the 532-3/4 hour point. Five shorted units were removed, the oven repaired and the test continued. To the end of this quarter, the life test has completed 1257 hours with no failures at 85C and 35 VDC. The life test is continuing. All preproduction testing will be completed in the next quarter.

AD-624 515 Fld. 9/1, 13/8
CFSTI Prices: HC $1.00 MF $0.50
SPRAGUE ELECTRIC CO NORTH ADAMS MASS
PRODUCTION ENGINEERING MEASURE FOR MECHANIZATION OF HIGH RELIABILITY CAPACITORS.
Quarterly rept. no. 11, 30 Jun-30 Sep 65,
by P. M. Kennedy, and G. E. Walters. 30 Sep 65, 12p. Contract DA-36-039-AMC-01460 (E)
Unclassified report

See also AD-613 565.

Descriptors: (*Paper capacitors, Manufacturing methods), (*Capacitors, Reliability (Electronics)), Plastics, Industrial equipment, Machines, Effectiveness, Soldering, Pipes, Conveyors

Work during this period consisted primarily of modification and adjustment to existing parts of the machines in order to optimize their efficiency. The nature of these modifications is described herein. (Author)

AD-624 520 Fld. 9/1, 13/8, 20/12
CFSTI Prices: HC $5.00 MF $1.00
RESEARCH TRIANGLE INST DURHAM N C
INTEGRATED SILICON DEVICE TECHNOLOGY. VOLUME IX. EPITAXY.
Rept. for Jan-Jul 65,
by B. M. Berry. Aug 65, 167p. Contract AF33 (615)-1998 Proj. AF-4159 Task 415906
ASD TDR-63-316-Vol-9
Unclassified report

See also AD-618 704.

Descriptors: (*Silicon, Epitaxial growth), (*Integrated circuits, Silicon), (*Semiconductor devices, Integrated circuits), Microminiaturization (Electronics), Vapor plating, Vacuum apparatus, Substrates, Impurities, Doping, Resistance (Electrical), Thickness, Crystal lattice defects, Transistors, Vacactor diodes, Diffusion, Films, Semiconducting films

The report discusses the theory, methods and practical applications of silicon epitaxy. Uniform impurity profiles, which are not practical in diffused layers, are readily obtainable by epitaxy since impurities are added to the growing layer. Epitaxial layers can be formed much faster than diffused layers; but thickness control of multilayers is easier with diffusion. Techniques of epitaxy and diffusion combine to provide an improvement in integrated circuit performance not possible by diffusion alone. Models for the epitaxial growth process and a brief description of defects occurring in imperfect epitaxy are given. The methods of epitaxially depositing silicon, both vapor phase and vacuum techniques, are explained. Evaluation techniques for silicon epitaxial wafers, e. g., thickness measurements and impurity and resistivity profile determination, are presented. The application of epitaxy to device structures and the improved performance in these structures brought about by epitaxy are discussed. (Author)

AD-624 530 Fld. 9/1, 13/8, 20/12
CFSTI Prices: HC $2.00 MF $0.50
LINCOLN LAB MASS INST OF TECH LEXINGTON
ELECTRODEPOSITED MAGNETIC FILM DEVELOPMENT.
Semi-annual technical rept. no. 2 (final),
by Irving W. Wolf, N. Ballard, and L. Banzet.
Sep 65, 35p. Rept. no. rr-65-8
Contract AF19 (628)-5167 Proj. AF-649L ESD TDR-65-45
Unclassified report

Prepared in cooperation with Ampec Corp., Redwood City, Calif.

Descriptors: (*Thin films (Storage devices), Electrodeposition), (*Films, Magnetic materials), (*Electrodeposition, Films), Sandwich construction, Etching, Chemical milling, Substrates, Metal films, Copper, Iron alloys, Nickel alloys, Creep strength, Aluminum alloys, Aluminum, Anodic coatings, Chromium

The report describes the development of a closed flux structure which incorporates a plated copper conductor in a thin permalloy sheet. The work included the production of large area samples of high coercivity film uniformly plated on a ground plane structure but separated from it by pinhole free insulation. (Author)

AD-624 538 Fld. 9/1
CFSTI Prices: HC $2.00 MF $0.50
TUNG-SOL ELECTRIC INC BLOOMFIELD N J
DEVELOPMENT OF A HIGH POWERED ELECTRON MULTIPLIER TUBE.
Summary quarterly rept. no. 5, 15 Jan 64-15 Apr 65,
by R. Franklin. 15 Apr 65, 40p. Contract Nonr-4323 (00) (X)
Unclassified report

Descriptors: (*Frequency multipliers, Manufacturing methods), Performance (Engineering), Electron tubes, Electron tube parts, Degasification, Processing, Secondary emission, Electrical properties, Design, Mechanical drawings

The U. S. N. 8455 multiplier was tested to find its duty cycle limit of operation. Two tubes were operated at two and one half per cent duty cycle for a combined total of 260 hours. Internal part processing modifications were made to eliminate gas evolvement during operation. These changes include: 1. The addition of vacuum firing of the nickel collector and the kovar outer shell. These parts are also hydrogen fired which is a continuation of the processing used with the U.S.N. 8455. 2. The dynodes are oxidized separately before mounting the tube. One U.S.N. 8455 was processed in this way and would not operate properly at dissipations higher than two and one half per cent. Tubes were constructed with modified internal elements. Tubes with modified construction were able to operate at higher duty cycle levels. An external copper radiator with concentric ceramic ring device were designed, parts procured, and the first tube is in final stages of assembly. This construction should help to evaluate tube performance under the 10% duty cycle conditions. (Author)

AD-624 549 Fld. 9/1
CFSTI Prices: HC $1.00 MF $0.50
TRG INC MELVILLE N Y
WIDE BAND CRYOGENIC PARAMETRIC AMPLIFIER.
Technical rept. no. 1, May-Sep 65,
by R. P. Damiano. Nov 65, 15p. Contract AF30 (602)-3768 Proj. AF-5573 Task 557301
RADC TR-65-395
Unclassified report

Descriptors: (*Parametric amplifiers, Microwave amplifiers), (*Microwave amplifiers, Parametric amplifiers), (*Cryogenics, Parametric amplifiers), Varactor diodes, Gallium alloys, Arsenic alloys, Design, Waveguide circulators, Pumping (Electronics), Broadband

Theoretical optimum gain-bandwidth product design curves are presented for a two-port non-degenerate parametric amplifier. These curves are based on the parameters of the Sylvania GaAs varactor diode. Included is a prototype amplifier design based on the data obtained from these curves. Measurements taken on a ferrite circulator operating at room temperature, 77K, and 30K indicate that an octaveband circulator covering the 4-8 Gc band can be designed to operate from room temperature down to cryogenic temperatures. (Author)

AD-624 561 Fld. 9/1, 18/8
CFSTI Prices: HC $3.00 MF $0.75
HUGHES AIRCRAFT CO FULLERTON CALIF
RADIATION EFFECTS ON MICROELECTRONIC CIRCUITS (SEMICONDUCTOR).
Quarterly rept. no. 1, 1 May-31 Jul 65,
by C. W. Perkins, R. W. Marshall, E. P. Mitchelland , and A. M. Liebschutz. Nov 65, 59p. Rept. no. fr-65-10-182
Contract DA-28-043-AMC-01313 (E) ECOM 01313-1
Unclassified report

Descriptors: (*Microminiaturization (Electronics), Radiation damage), (*Radiation damage, Semiconductors), (*Semiconductors, Radiation damage), Integrated circuits, Radiation measurement systems, Reliability (Electronics), Transistors, Diodes (Semiconductor), Wiring diagrams, Electronic equipment, Performance (Engineering)

The first quarter of the program was devoted entirely to the preparation of devices and instrumentation for the radiation tests. The circuits were procured and subjected to a thorough pre-irradiation test in the laboratory. The report describes the circuits chosen for study and the measurements made in the laboratory bench tests. All of the instrumentation to be used in this program is described in detail in this report. This includes the instrumentation for (1) the laboratory bench tests, (2) the Linac transient radiation effects tests, and (3) the pulsed reactor permanent damage tests. (Author)

AD-624 566 Fld. 9/1
CFSTI Prices: HC $2.00 MF $0.50
RADIO CORP OF AMERICA HARRISON N J ELECTRONIC COMPONENTS AND DEVICES
DEVELOPMENT OF TRANSISTOR-VARACTOR DIODE CAPABLE OF 5 WATTS OUTPUT AT 2.3 GIGACYCLES.
Interim technical rept. no. 1, 1 Jun-31 Aug 65,
by P. L. McGeough, and H. C. Lee. 1965, 51p.
Contract AF33 (615)-2486
Unclassified report

Descriptors: (*Semiconductor devices, Microwave equipment), (*Frequency multipliers, Semiconductor devices), Transistors, Circuits, Varactor diodes, Photoengraving, Diffusion, Packaging, Radiofrequency power, Integrated circuits, Diodes (Semiconductor)

Recently obtained overlay transistor data for devices with surface geometries similar to the proposed device, coupled with advances in photolithographic techniques, have resulted in a redesign of the device surface geometry. This new design, which has resulted in a factor of two increase in emitter-base periphery over the originally proposed structure with no increase in device junction areas, should result in a significant improvement in device performance capability. The benefits associated with this new structure require process improvements, particularly in the area of mask fabrication, photolithographic techniques and diffusion techniques. The required photomasks have been designed and engineering drawings are being prepared. Studies of various photoresist techniques are being evaluated to determine optimum coating, exposure and developing procedures for the new structure. The effects of various diffusion schedules on UHF performance are being investigated using 'unitcell' structure as the experimental vehicle. Diffusion runs are in process to determine the influence of shallow junction depths and thin epitaxial layers on device performance. A stripline package has been designed and piece parts ordered for initial fabrication and evaluation of this case.

AD-624 583 Fld. 9/1, 13/8
CFSTI Prices: HC $3.00 MF $0.75
INTERNATIONAL RECTIFIER CORP LOS ANGELES CALIF
PRODUCTION ENGINEERING MEASURE. HIGH VOLTAGE SILICON RECTIFIER STACKS.
Quarterly progress rept. nos. 16 - 17, 25 Mar25 Sep 65,
by A. Conn. 25 Sep 65, 56p. Contract DA-36-039-sc-85977
Unclassified report

See also AD-619 524.

Descriptors: (*Rectifiers, Silicon), (*Diodes (Semiconductor), Rectifiers), Dielectrics, Leakage (Electrical), Dielectric properties, Tests, Quality control, Performance (Engineering)

The problem of high dielectric leakage which had delayed testing appears to have been solved by the methods taken in the last quarter. Testing of the 40KV units and 30KV was completed. No further difficulties are expected. A complete report of testing results is included in this report. (Author)

AD-624 588 Fld. 9/1
CFSTI Prices: HC $3.00 MF $0.50
TUNG-SOL ELECTRIC INC BLOOMFIELD N J
EVALUATION OF ELECTRON MULTIPLIER TUBE AND CIRCUITRY.
Final rept.,
by T. Stafford. 1 Jun 65, 56p. Contract Nonr-4719 (00)
Unclassified report

Descriptors: (*Electron multipliers, Electron tubes), (*Electron tubes, Secondary emission), Electrodes, Voltage, Radiofrequency pulses, Performance (Engineering), Circuits

The secondary emission electron multiplier tube type 8428 was evaluated to determine operating conditions and power supply requirements. Effect of interelectrode voltage variation on output pulse voltage was determined. Circuits for supplying dynode voltages, overload protection, and grid (1) input were designed. Grid (1) characteristics were investigated and proper bias voltage and input signal level were set. Tube characteristics were measured at several anode voltage levels and the effect of varying the duty cycle was measured. Data, circuit diagrams, and photographs of the output pulse are included. It was found that the output pulse characteristics of the 8428 are well suited for driving a TWT grid. (Author)

AD-624 590 Fld. 9/1
CFSTI Prices: HC $4.00 MF $0.75
NAVAL ORDNANCE LAB WHITE OAK MD
THE TUNNEL JUNCTION NEURISTOR.
Final rept.,
by A. J. Cote,Jr.. 17 May 65, 112p. Rept. no. noltr-65-60
Task RREN-04/012/212/1/F008-21/02
Unclassified report

Descriptors: (*Neuristors, Tunnel diodes), (*Tunnel diodes, Neuristors), (*Microminiaturization (Electronics), Neutristors), Transmission lines, Networks, Tunneling (Electronics), Trigger circuits, Wave transmission, Propagation

One of the components potentially useful in microelectronics systems is the neuristor, a distributed active transmission line having pulse propagation properties similar to those of a nerve fiber. The current status of the Naval Ordnance Laboratory's attempts to realize a practical neuristor device by employing a novel tunnel diode structure is contained in this report. Attempts at neuristor realization are reviewed and the basis is described for the approach based upon tunnel diode structures. The experimental results obtained on a variety of the latter devices are included, along with a discussion of some improved methods of trigger-coupled network realization. Propagation velocities on the order of 10,000 meters per second were measured over path lengths as great as 0.4 inches. Possible propagation mechanisms are discussed. The operation of a trigger junction was demonstrated but attempts to demonstrate a unilateral junction were inconclusive. Coupling of pulses between different lines via the substrate was also encountered along with a phenomenon having implications as a possible inhibit mechanism for refractory junctions. (Author)

AD-624 613 Fld. 9/1
CFSTI Prices: HC $1.00 MF $0.50
VARIAN ASSOCIATES BEVERLY MASS QUANTUM ELECTRONICS DIV
CESIUM BEAM TUBE RESEARCH.
Quarterly progress rept. no. 2, 1 Apr-30 Jun 65,
by Joseph H. Holloway. 30 Jun 65, 25p. Contract DA-28-043-AMC-00464 (E) Proj. DA-1P6-22001-A-058 Task 1P6-22001-A-058-03
Unclassified report

Descriptors: (*Cesium electron tubes, Reliability (Electronics)), Electron beams, Deflection, Magnets, Transistors, Collimators, Magnetic fields, Stability, Life expectancy, Microwave equipment, Wave transmission, Electron tube parts

During this reporting period the design of the beam tube subassemblies to be used in a demountable, bakeable beam optics chamber has been completed, except for the deflecting magnet shielding, the ion optics focussing lens, and some wiring details. Fabrication of the parts for the subassemblies and the main tube was 75% completed. Experimental work has been carried out on problems relating to the coaxial microwave cavity and the field effect transistor. (Author)

AD-624 617 Fld. 9/1, 20/14
CFSTI Prices: HC $3.00 MF $0.50
BROWN UNIV PROVIDENCE R I
ZERO-CUTOFF MODE IN DIELECTRIC-LOADED COAXIAL WAVEGUIDE,
by D. M. Bolle, and M. D. Morganstern. Jun 65, 55p. Rept. no. scientific-8 ,AF-2498/8
Contract AF19 (628)-2498 Proj. AF5635 Task 563503
AFCRL 65-72
Unclassified report

Descriptors: (*Waveguides, Coaxial cables), (*Microwave equipment, Dielectrics), Ferrites, Phase shifters, Polarization, Microwaves, Propagation

Microwave ferrite isolators and phase shifters use partial dielectric loading to achieve the circular polarization essential to the operation of such devices. An approximate solution is developed for the lowest propagating mode in coaxial waveguide partially filled with dielectric. The solution is obtained by assuming a value for the propagation constant, and treating the problem as a perturbation of the zero-cutoff TEM mode which would generally exist in the guide were it filled homogeneously with dielectric. The points of maximum circular polarization are shown to lie on the dielectric interface roughly midway between the inner and outer conductors. (Author)

AD-624 695 Fld. 9/1
CFSTI Prices: HC $2.00 MF $0.50
CENTRE DE PHYSIQUE ELECTRONIQUE ET CORPUSCULAIRE ORSAY (FRANCE)
HALF MILLIMETER 'BACKWARD WAVE OSCILLATOR'.
Summary rept., phase..
31 Oct 65, 34p. Rept. no. wr-1456
Contract AF61 (052)-814 RADC TR-65-519
Unclassified report

Descriptors: (*Backward-wave oscillators, Millimeter waves), (*Millimeter waves, Backward-wave oscillators), Design, Mechanical drawings, Electron guns, Magnetic fields, Electron beams, Focusing, Delay line, Backwardwave tubes

The final objective of this work is to construct a half millimeter 'Backward wave Oscillator', with a power level in the range of half a watt. In this first step, an electron gun with a beam density of about 1,200 A/sq cm in the ten kilovolts range has been studied. The overall technology of the tube has also been examined. Guns and delay line test results are given. (Author)

AD-624 708 Fld. 9/1
CFSTI Prices: HC $2.00 MF $0.50
NAVAL CIVIL ENGINEERING LAB PORT HUENEME CALIF
ELECTROMAGNETIC SHIELDING EFFECTIVENESS MEASUREMENTS USING LOW CONDUCTIVITY CLOSED SURFACES.
Rept. for Jun-Sep 64,
by H. A. Lasiter. Dec 65, 30p. Rept. no. tr-R-416
Proj. Y-R011-01-01-059
Unclassified report

Descriptors: (*Electromagnetic shielding, Effectiveness), Measurement, Attenuation, Walls, Hemispherical shells, Rectangular bodies, High frequency, Very high frequency, Ultrahigh frequency

In an investigation to predict the shielding effectiveness of low-conductivity materials used in electromagnetic interference-shielded structures, the symmetrical configuration of a spherical shell was adapted to approximate the closed walls of a normally cubical or rectangular shielded enclosure. A hemisphere was used for the experiments and a half cube with the same surface area and conductivity (0.1 mho/meter) was used for comparison of an equivalent rectangular structure. In measurements over a frequency range of 20 to 900 Mc (or MHz), the half cube showed a greater shielding effectiveness than the hemisphere over a major portion of the frequency range. The primary advantage of the hemisphere is the ability to predict the absorption over a wide band of frequencies. The conductivity of the materials used in this investigation was found to exhibit an empirical relationship with frequency range, described by log (sigma/sigma sub dc) = 0.236 log f. (Author)

AD-624 748 Fld. 9/1, 13/8
CFSTI Prices: HC $1.00 MF $0.50
MALLORY (P R) AND CO INC INDIANAPOLIS IND
PRODUCTION ENGINEERING MEASURE FOR IMPROVED RELIABILITY OF SOLID ELECTROLYTE TANTALUM CAPACITORS.
Quarterly rept. no. 8, 30 Mar-29 Jun 65,
by A. W. H. Smith. 29 Jun 65, 14p. Contract DA-36-039-AMC-3623 (E)
Unclassified report

See also AD-616 299.

Descriptors: (*Tantalum capacitors, Manufacturing methods), Reliability (Electronics), Failure (Electronics), Quality control, Anodes, Contamination, Electrolyes, Solids

Failure analysis of the third pilot run units revealed an unexpected failure mode. Cause for failure appeared to be contamination of the anodes by the riser stop-off material. The production run capacitors were examined and thirteen lots were rejected. An improved Process Inspection Point procedure was instituted before production scheduling replacement lots. (Author)

AD-624 828 Fld. 9/1, 20/3
CFSTI Prices: HC $1.00 MF $0.50
GEORGE WASHINGTON UNIV WASHINGTON D C SCHOOL OF ENGINEERING AND APPLIED SCIENCE
ON THE STABILITY AND DYNAMIC BEHAVIOR OF CASCADED THERMOELECTRIC DEVICES,
by D. K. Anand, Morton F. Taragin, and Louis de Pian. 30 Oct 65, 7p. Rept. no. 4
Contract Nonr-761 (09) Proj. NR-185-550
Unclassified report

Pub. in Proceedings of IEEE v53 n10 p1637 Oct 65.

Descriptors: (*Thermoelectricity, Networks), Dynamics, Stability, Cascade structures, Transducers

The dynamic response of single-stage thermoelectric devices and the static behavior of single-stage and thermally cascaded devices have been studied by many researchers. However, little work has been done on the dynamic response of cascaded devices. The effect is shown of cascading on stability and dynamic response by analyzing the small signal transfer functions.

AD-624 858 Fld. 9/1, 13/8
CFSTI Prices: HC $2.00 MF $0.50
GENERAL ELECTRIC CO AUBURN N Y SEMICONDUCTOR PRODUCTS DEPT
A PRODUCT ENGINEERING MEASURE FOR THE IMPROVEMENT OF PRODUCTION TECHNIQUES TO INCREASE THE RELIABILITY AND TO IMPROVE PRODUCT CAPABILITY OF HIGH VOLTAGE MINIATURE SILICON RECTIFIERS.
Quarterly progress rept. no. 2, 31 Mar-30 Jun 65,
by W. R. Comstock, N. E. Devolder, R. R. Schall, and E. G. Tefft. 30 Jun 65, 46p. Contract DA-36-039-AMC-06157 (E)
Unclassified report

See also AD-619 258.

Descriptors: (*Rectifiers, Manufacturing methods), (*Silicon, Rectifiers), (*Diodes (Semiconductor), Silicon), Reliability (Electronics), Miniature electronic equipment, Voltage, Pellets, Doping, Glass, Casting, Encapsulation, Life expectancy

Progress is reported on the improvement in production techniques to increase the reliability and capability of a high voltage miniature silicon rectifier. The work performed during this period includes: the empirical design of a process to achieve the proper lifetime control in order to meet the reverse recovery time specification, the design of experiments to evaluate the optimum pellet geometry and doping for reliability purposes, the calculation of the rating of the improved product design, the review of the ability of the improved product design to meet the MIL specification requirements, the use of the computer rating system to set the proper junction temperature value for the matrix testing, further optimization of the improved glass casting process, the evaluation of the redesigned slug and lead assembly, the delivery of the second Engineering samples. (Author)

AD-624 312 **See Fld. 20/3**

AD-624 313 **See Fld. 10/1**

AD-624 359 **See Fld. 20/5**

AD-624 455 **See Fld. 19/1**

AD-624 509 **See Fld. 18/8**

AD-624 611 **See Fld. 20/11**

AD-624 709 **See Fld. 20/1**

AD-624 769 **See Fld. 14/4**

AD-624 787 **See Fld. 18/8**

AD-624 788 **See Fld. 18/8**

9/2. COMPUTERS

AD-624 290 Fld. 9/2, 6/4, 13/8
CFSTI Prices: HC $3.00 MF $0.75
RAND CORP SANTA MONICA CALIF
SOVIET CYBERNETICS TECHNOLOGY: V. SOVIET PROCESS CONTROL COMPUTERS,
by Willis H. Ware, and Wade B. Holland. Nov 65, 91p. Rept. no. rm-4810-PR
Contract AF49 (638)-700 TT 65-64617
Unclassified report

Descriptors: (*Data processing systems, USSR), (*Cybernetics, USSR), (*Computers, USSR), (*Industrial research, USSR), Man-machine systems, Bionics, Artificial intelligence, Automation, Control systems, Adaptive systems, Analog computers, Digital computers, Computer logic, Specifications, Reviews

This Memorandum details eight recently developed Soviet control computers, all of which are either presently being produced or are scheduled for production. The eight include: 'Dnepr' (UMShN), UM-1-NKh, VNIIEM-1, VNIIEM-3, UM-1, 'Stal'-2', 'Zenit-3', and MPPI-1. The information on these machines is in the form of heavily annotated translations from Soviet source material. All pictures and diagrams from the original source items are included, as well as several photographs from other sources. An appendix contains an alphabetical listing of all abbreviations used in the original Russian texts.

AD-624 362 Fld. 9/2
CFSTI Prices: HC $2.00 MF $0.50
LINCOLN LAB MASS INST OF TECH LEXINGTON
THE DATA RECOVERY CENTER TARGET SIMULATOR.
Technical note,
by J. H. Halberstein, A. H. Flink, O. V. Fortier, P. J. Harris, and R. M. Martinson. 17 Sep 65, 34p. Rept. no. tn-1965-42
Contract AF19 (628)-5167 ,ARPA Order-600
ESD TDR-65-44
Unclassified report

Descriptors: (*Data processing systems, Target recognition), (*Targets, Simulators), Digital computers, Target discrimination, L band, Relaxation oscillators, Computer logic, Phase shift, Pulse generators, Circuits

It is very important for the operation of the Lincoln Data Recovery Center to be able to inject into it artificially generated targets. These target-pulses must simulate as closely as possible those appearing in the input from the I. F. tape into the D. R. C. and should be controllable in range, width, amplitude, phase and repetition rate by special computer programs written for the CDC-3200 computer. In addition to the FM channels of the tape, its digital channels must be simulated. A target simulator was constructed to the above specifications and is described. (Author)

AD-624 431 Fld. 9/2, 5/11
CFSTI Prices: HC $1.00 MF $0.50
RAND CORP SANTA MONICA CALIF
COMMUNICATIONS, COMPUTERS AND PEOPLE,
by Paul Baran. Nov 65, 21p. Rept. no. p-3235
Unclassified report

Prepared for presentation at the Fall Joint Computer Conference to be held in Las Vegas, December 2, 1965.

Descriptors: (*Data storage systems, Communication systems), (*Communication systems, Data storage systems), (*Sociology, Data storage systems), Data processing systems, Social communication, Digital computers

Impact of the computer technology of communications business is discussed as is the increase in creation of new types of computer systems resulting from widespread low-cost digital communications. SOCIAL CONSEQUENCES: Loss of the individual's right to privacy; unscrupulous individuals may use the information unlawfully; organized crime may misuse the information; 'inferential relational retrieval' techniques could draw chains of relationships between persons, organizations, and events; use of private detectives may increase to unearth derogatory information on political candidates and their associates for establishing thin chains of inferred relationships; creation of remote interrogation devices to interact with a file from a large number of points will cut costs of retrieval. PROPOSED SPECIFIC SAFEGUARDS: Provide for minimal cryptographic type of protection to communications lines that carry embarrassing data; never store file data in the complete 'clear'; make random external auditing of file operating programs standard practice; create sensible, precise ground rules on cross-system interrogation access for interconnected individual file systems; provide mechanisms to detect abnormal informational requests; build in provisions to record the source of requests for information interrogations; and audit information requests and inform authorities of suspected misuse of the system.

AD-624 437 Fld. 9/2
CFSTI Prices: HC $2.00 MF $0.50
STANFORD RESEARCH INST MENLO PARK CALIF
NOTES ON CLASSIFICATION CAPACITIES,
Interim rept.,
by T. Cover. Oct 65, 26p. Contract AF30 (602)-3448 Proj. 5581 Task 558104
RADC TR-65-263
Unclassified report

See also AD-436 347.

Descriptors: (*Learning machines, Networks), (*Computer logic, Pattern recognition), Classification, Data storage systems, Linear systems, Mathematical logic

This is a working paper concerned with the problem of determining the information storage capacities of networks of linear threshold devices. Capacities for single element networks and low dimensional multielement networks are found, and bounds on capacities are discussed for general networks. (Author)

AD-624 468 Fld. 9/2, 12/1
CFSTI Prices: HC $7.00 MF $1.50
TECHNOLOGY INC DAYTON OHIO
SYSTRAN (SYSTEMS ANALYSIS TRANSLATOR): A DIGITAL COMPUTER PROGRAM.
Rept. for Aug 62-Oct 64,
by D. J. LaJeunesse, E. B. Weis, Jr., and T. J. Hogan, Jr., Jul 65, 322p. Contract AF33 (616)-10010 Proj. AF-7231 Task 723101
AMRL TR-65-133

Unclassified report

Descriptors: (*Programming (Computers), Instruction manuals), (*Computer logic, Programming (Computers)), Information theory, Linear systems, Integral transforms, Fourier analysis, Algebra, Matrix algebra, Curve fitting, Statistical functions, Data storage systems, Digital computers, Input-output devices, Complex variables, Correlation techniques, Numerical analysis, Probability

The mechanics, mathematics, and usage of a program written in FORTRAN IV and MAP for the IBM 7094 are described. The program is called SYSTRAN (systems analysis translator) and it includes subroutines for most of the common tools for frequency domain analysis of linear systems (such as Fourier transforms and inverse Fourier transforms, complex algebra, and correlation functions). The report is essentially an instruction manual. It contains a discussion of all aspects of the program essential to competent usage. (Author)

AD-624 489 Fld. 9/2, 12/1
MITRE CORP BEDFORD MASS
ON MAPPINGS FOR MODULAR ARITHMETIC, II.
Revised ed.,
by S. Berkovits, M. Schlessinger, and N. Zierler. Apr 65, 3p. ESD TDR-64-14

Unclassified report

Revision of manuscript submitted Aug 64.

Availability: Published in Journal of the Association for Computing Machinery V12 N4 P545-6 Oct 1965. Copies to DDC users only.

Descriptors: (*Digital computers, Computer logic), (*Mapping (Transformations), Algebra), Modules (Electronic), Numerical methods and procedures

An expression is presented for the total number of mappings for modular arithmetic, where the multiplicative identity is not necessarily preserved.

AD-624 521 Fld. 9/2, 5/2
CFSTI Prices: HC $6.00 MF $1.50
ITT DATA AND INFORMATION SYSTEMS DIV PARAMUS N J
STUDY OF PROGRAMMING DOCUMENTATION STANDARDS AND SPECIFICATIONS.
Final technical rept. 16 May-15 Nov 65,
by William H. Miehe, James P. Shea, James J. Connelly, and Raymond Schiller. 15 Nov 65, 282p. Contract Nonr-4958 (00) Proj. NR-276-018,NAVCOSSACT-90A-12

Unclassified report

Descriptors: (*Programming (Computers), Documentation), (*Documentation, Programming (Computers)), Reports, Standards, Specifications, Data processing systems

The objective of Project 90A012 was to develop standards and specifications for NAVCOSSACT programming documentation that would be generally applicable to all NAVCOSSACT projects. The standards were to be sufficiently broad, yet detailed enough to be applicable to programming documentation requirements of any NAVCOSSACT software system. The specifications for the various kinds of programming documents were to be derived from, and were to reference, the documentation standards, thereby enabling a consistency of documentation throughout all NAVCOSSACT projects. A hierarchy of documentation was to be established that would provide a logical relationship among documents and would permit sufficient flexibility for appropriately covering all types of software systems. The conclusions in the Report indicate that the program employed was effective for this type of project and the objectives were achieved as embodied in the Appendix. (Author)

AD-624 548 Fld. 9/2
CFSTI Prices: HC $1.00 MF $0.50
ILLINOIS UNIV URBANA ELECTRICAL ENGINEERING RESEARCH LAB
AUTOMATIC ADJUSTMENT IN A CONTINUOUS ENVIRONMENT,
by A. M. Andrew. Sep 65, 23p. Rept. no. tr-8 Contract AF AFOSR-7-64 AFOSR 65-2283

Unclassified report

Descriptors: (*Learning machines, Adaptive systems), Control systems, Automatic, Optimization, Artificial intelligence, Mathematical models

Control devices, biological or otherwise, which are able to adjust their own internal parameters are discussed. It is shown that under certain circumstances the adjustment process must depend on experimental fluctuations superimposed on either the parameters or the control signals. The way is studied in which the effective fluctuations attributed to the parameters can best be computed from fluctuations of the control signals. A mathematical comparison is given of two ways in which a self-improving controller may operate, namely with and without an explicit model of the environment. For a simple control task the two are shown to be almost exactly equivalent. (Author)

AD-624 606 Fld. 9/2, 20/12
CFSTI Prices: HC $7.00 MF $1.75
RCA LABS DIV RADIO CORP OF AMERICA PRINCETON N J
CRYOELECTRIC RANDOM ACCESS MEMORY, PHASE III.
Final rept., vol. 1, 1 Mar 64-31 Aug 65,
by L. L. Burns. Nov 65, 387p. Contract AF30 (602)-3090 Proj. 5581 Task 558108
RADC TR-65-405-Vol-I

Unclassified report

See also AD-609 469.

Descriptors: (*Cryogenic storage devices, Thin films (Storage devices)), (*Computer storage devices, Digital computers), Data storage systems, Tin, Grain structures (Metallurgy), Geometry, Superconductors, Cryogenics, Electrical networks, Computer logic, Thermodynamics

A program is discussed for the development of a largecapacity, random-access cryoelectric memory. Theoretical studies were undertaken on the cryoelectric memory. These studies showed that the detailed electrodynamic behavior of continuous film superconducting memories can be specified. It is shown that the most important single parameter is the uniformity of the grain structure in the tin memory film itself. Size variations greater than 2:1 of the microcrystallites of tin forming the memory film will make it practically impossible to build a plane with a uniformity of drive currents that is satisfactory for proper operation in a memory stack. Another important parameter is the geometrical control of the width of the drive and sense lines when other than cavity sensing techniques are used. It is shown that cavity sensing works quite satisfactorily for small structures, but is not usable for large structures. Two expressions were developed from different points of view that give essentially the same answer with regard to the variation in sense signal for cavity sensing structures over a plane. A practically exact solution to the output from a line sense structure is developed, and it is shown that a 1-mV sense signal can reasonably be expected for cryoelectric memory cells of a size such that 10,000 can be put in one square inch. The vortex theory of superconductive memories is fully developed and provides another method of attach in specifying the electrodynamic behavior of continuous film memory planes. (Author)

AD-624 658 Fld. 9/2, 5/2
CFSTI Prices: HC $3.00 MF $0.75
GEORGIA INST OF TECH ATLANTA
A METHOD FOR INVESTIGATING THE BEHAVIOR OF ATTRIBUTES WHICH BELONG TO INFORMATION STORAGE AND RETRIEVAL SYSTEMS.
Master's thesis,
by Ralph Paul Heckman. Aug 65, 98p. Contract AF33 (608)-1234

Unclassified report

Descriptors: (*Information theory, Data processing systems), (*Data processing systems, Information theory), Information retrieval, Data storage systems, Operations research, Statistical analysis

The purpose of this study is to develop and apply, by the way of illustration, a method for investigating the behavior of attributes which belong to information storage and retrieval systems. Although several attributes are common to many information systems, their values differ according to the conditions which are present in a given system. An investigation of the relationships between the conditions and the attributes can enlarge the operational understanding of the concept 'information storage and retrieval system.' An operational understanding of this concept is necessary in order to design these systems because it provides an a priori knowlede about the probable state that a system will assume. This state is defined as the values which the attributes will possess under specified conditions, once the system is in operation.

AD-624 726 Fld. 9/2
CFSTI Prices: HC $6.00 MF $1.25
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
A SYSTEM FOR PROGRAMMING AUTOMATION,
by N. P. Trifonov, and M. R. Shura-Bura. 24 Nov 65, 201p. Rept. no. ftd-TT-65-830
TT 65-64782

Unclassified report

Unedited rough draft trans. of mono. Sistema Avtomatizatsii Programmirovaniya, Moscow, 1961 187p.

Descriptors: (*Programming (Computers), Automation), Compilers, Data transmission systems, USSR

The report presents the system of programming automation developed at the Computer Center of Moscow State University. The system is based on the utilization of compiler and translator programs, as well as several monitor programs.

AD-624 727 Fld. 9/2
CFSTI Prices: HC $1.00 MF $0.50
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
POLIZ-63 INTERPRETER,
by E. A. Zhogolev. 1 Dec 65, 20p. Rept. no. ftd-TT-65-1658
TT 65-64783

Unclassified report

Unedited rough draft trans. of Zhurnal Vychislitelnoi Matematiki i Matematicheskoi Fiziki (USSR) v5 n1 p67-76 1965.

Descriptors: (*Programming (Computers), Automation), Computer logic, Algorithms, Data storage systems, USSR

A concrete variant of the POLIZ interpreter is discussed. Operations, illustrating the basic ideas of the given interpreter, are discussed. New ideas realized in POLIZ-63 simplify the translation algorithms.

AD-624 812 Fld. 9/2, 20/6, 20/3
MASSACHUSETTS INST OF TECH CAMBRIDGE
OPTICAL AND ELECTRO-OPTICAL INFORMATION PROCESSING,
by James T. Tippett, David A. Borkowitz, Lewis C. Clapp, Charles J. Koester, and Alexander Vanderburgh, Jr., 1965, 785 p.
Unclassified report

Availability: Available from Massachusetts Inst. of Tech., Cambridge.

Descriptors: (*Data processing systems, Electrooptics), Digital computers, Optics, Data storage systems, Computer logic, Semiconductor devices, Diffraction, Lasers, Lenses, Reading machines, Optical filters, Pattern recognition, Transducers, Tunnel diodes, Optical scanning, Gain, Automata, Thermoplastics, Quantum mechanics

Contents: An optically accessed memory using the hippmann process for information storage; A quantum optical phenomenon, implications for logic; Picture processing; Use of Fourier transformable properties of lenses for signal spectrum analysis; Contribution of diffraction optics to optical information technology; Coherent optical technology; Character-reading by optical spatial filtering; Machine perception of three-dimensional solids; Spatial filtering for pattern recognition; Optical correlator with time variable coding; Semiconductors in coherent optical transducers and spatial filters; Injection lasers; All-optical computers; Laser effects in optical logic functions; Laser digital devices; Fiber optics and lasers; Very fast opto-electronic digital logic; Thin magnetic film wall panel display; Light emission from GaAs tunnel diodes in computers; Laser deflection and scanning; Optical signal processing systems; Digital light deflector; Gain in opto-electronic logic; Di-scan; Opticalogical recognition; Thermoplastic recordings; Photochromic semirandom access memory; Fidac; Optical image processing; Optical logic; Silicon avalanche light sources; Electrooptical signal processors for phased arrays; Optical holography (Wavefront reconstruction imaging).

AD-624 829 Fld. 9/2, 12/1
CFSTI Prices: HC $3.00 MF $0.50
COMPUTER SCIENCE DIV STANFORD UNIV CALIF
THE AUTOMATIC CONSTUCTION OF COMPUTATIONAL ALGORITHMS.
Technical rept.,
by G. I. Marchuk. 30 Sep 65, 58p. Rept. no. cs-30
Contract Nonr-225 (37) Proj. NR-044-211 TT 65-64824
Unclassified report

Trans. of paper presented at Conference on Numerical Methods, Prague, Czechoslvakia, Sep 64.

Descriptors: (*Programming (Computers), Algorithms), (*Algorithms, Synthesis), Automatic, Numerical analysis, Integral equations, Differential equations, Partial differential equations, Difference equations, Operators (Mathematics)

Several documents by Professor G. I. Marchuk (Director of the Computer Center at the Siberian Division of the Academy of Sciences of the USSR, at Novosibirsk) are translated dealing with the automatic construction of computational algorithms for finding numerical solutions to a wide variety of problems, including linear equations, integral equations, ordinary differential equations (initialvalue and boundary-value), and partial differential equations (elliptic, parabolic and hyperbolic). Finite-difference equations are constructed systematically by the 'method of splitting', based on the replacement of operators by the sum of simpler operators (e.g. as in alternating-direction methods). (Author)

AD-624 853 Fld. 9/2
CFSTI Prices: HC $1.00 MF $0.50
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
MAGNETIC OPERATIONAL MEMORY DEVICE OF AN INFORMATION-LOGICAL MACHINE,
by K. K. Briling, and L. S. Levinskii. 10 Nov 65, 22p. Rept. no. ftd-TT-65-1562
TT 65-64809
Unclassified report

Unedited rough draft trans. of Nauchno-Tekhnicheskaya Informatsiya (USSR) n1 p32-7 1965.

Descriptors: (*Computer storage devices, USSR), (*Magnetic recording systems, Computer storage devices), Data storage systems, Computer logic, Ferrites, Experimental design

Results are presented on the development of a complex adjustment and experimental exploitation of a magnetic operational memory device for 16384 numbers (MOZU-16000). Discussed is a problem of reducing the number of tubes and semiconductor elements in memory devices; proposed is a multistage system of selecting the address with the use of ferrite-triode current switches and a commutation system in the recording circuit; bases are given for the use of a system with direct selection in MOZU-16000. (Author)

AD-624 276 **See Fld. 7/4**

AD-624 321 **See Fld. 16/2**

AD-624 490 **See Fld. 9/1**

AD-624 555 **See Fld. 5/7**

AD-624 559 **See Fld. 18/8**

AD-624 578 **See Fld. 12/2**

AD-624 627 **See Fld. 4/2**

9/3. ELECTRONIC AND ELECTRICAL ENGINEERNG

AD-624 689 Fld. 9/3, 12/1
CFSTI Prices: HC $1.00 MF $0.50
HARRY DIAMOND LABS WASHINGTON D C
DIGITAL GENERATION OF BAND-LIMITED GAUSSIAN NOISE,
by Badrig M. Kurkjian. 25 Oct 65, 16p. Rept. no. tm-65-49
Proj. HDL-39800
Unclassified report

Descriptors: (*Noise (Radar), Stochastic processes), Statistical processes, Linear systems, Functions, Networks, Bandwidth

The report gives a method for generating a set of random variables, equally spaced, tau time units apart, from a Gaussian noise function y (t) with specified power spectrum P sub o (omega). The particular spectrum P sub o (omega) = A squared a squared/ a squared + omega squared, omega > o is treated as an illustration. The noise signal y (t) can be thought of as the output of a linear system (e.g., a simple RC filter) with transfer function H (j omega), where the input signal is Gaussian white noise X (t) with flat spectrum of constant amplitude A squared. (Author)

AD-624 380 **See Fld. 9/4**

AD-624 771 **See Fld. 9/5**

AD-624 842 **See Fld. 12/1**

9/4. INFORMATION THEORY

AD-624 255 Fld. 9/4, 17/2
CFSTI Prices: HC $1.00 MF $0.50
ILLINOIS UNIV URBANA COORDINATED SCIENCE LAB
STOCHASTIC FLOW OF MESSAGES AND ITS EFFICIENT TRANSMISSION THROUGH COMMUNICATION NETS;
by Kenji Onaga. Nov 65, 18p. Rept. no. r-269
Contract DA-28-043-AMC-00073 (E) ,AF49 (638)-1383 Proj. DA-20014501B31F
Unclassified report

Descriptors: (*Information theory, Stochastic processes), (*Stochastic processes, Information theory), (*Data transmission systems, Information theory), Mathematical models, Communication systems

Efficient transmission of stochastic flow of messages through store-and-forward type communication nets is discussed in this paper. In order to express quality or performance of flow psi quantitatively, we define the penalty index P (psi) as the sum of total time delay D (psi), total transmission cost K (psi), and total transmission redundancy R (psi) with certain proportions of penalty. A necessary and sufficient condition of minimum penalty flow for the fixed flow value is obtained in Theorem 4 and is demonstrated by a simple example. (Author)

AD-624 380 Fld. 9/4, 9/3
NORTHWESTERN UNIV EVANSTON ILL DEPT OF ELECTRICAL ENGINEERING
CUT-SET MATRICES AND LINEAR CODES,
by S. L. Hakimi, and H. Frank. 1 Oct 64, 2p.
Contract DA-ARO (D)-31-124-G223 ,AF-AFOSR-98-63 AROD 3298:21
Unclassified report

Availability: Published in IEEE Transactions on Information Theory, VIT-11 N3 P457-8 Jul 1965. Copies to DDC users only.

Descriptors: (*Coding, Electrical networks), (*Information theory, Circuits), (*Graphics, Electrical networks), (*Circuits, Information theory), Topology, Vector analysis, Matrix algebra, Linear systems, Electrical engineering

A method is described for constructing a most efficient code whose generating matrix is a fundamental cut matrix of a graph.

AD-624 693 Fld. 9/4, 12/1
CFSTI Prices: HC $3.00 MF $0.75
MASSACHUSETTS INST OF TECH CAMBRIDGE ELECTRONIC SYSTEMS LAB
ON THE MEASUREMENT OF RANDOMLY TIMEVARYING LINEAR SYSTEMS,
by Gerald E. Pollon. May 65, 76p. Rept. no. esl-R-238
Contract NOw-61-0400 Proj. MIT-DSR-8684
Unclassified report

Descriptors: (*Linear systems, Measurement), Statistical functions, Time, Control systems, Feedback, Stochastic processes, Information theory, Invariance

It is shown what measurements to perform on a system that is randomly time-varying and linear, but otherwise unknown, to completely characterize it. The success of these measurements depends on a representation of a randomly time-varying linear system different from those commonly used. It is shown what measurements to perform on a randomly time-varying linear system to predict the auto-correlation function of the output signal from the autocorrelation function of the input signal when the input is a stationary random process. It is shown what measurements must be performed on a randomly time-varying linear system to design a linear open-loop controller which is optimum in the mean square sense. These measurements

are simpler than the measurement of the autocorrelation function transfer relation. Experimental results concerning measurement and system performance were accomplished by applying a white Gaussian test signal to the unknown system and measuring statistical averages of quantities obtained by jointly manipulating the input and resulting output. (Author)

AD-624 785 Fld. 9/4, 17/2
CFSTI Prices: HC $2.00 MF $0.50
INSTITUTE OF NAVAL STUDIES CAMBRIDGE MASS
ON MEASURING THE VALUE OF INFORMATION, WITH IMPLICATIONS FOR COMMUNICATIONS SYSTEMS,
by Aubrey H. Payne. Jan 65, 34p. Rept. no. ins-Research-Contribution-10
Unclassified report

Descriptors: (*Information theory, Communication systems), (*Decision making, Mathematical models), Decision theory, Statistical analysis, Operations research, Minimax technique, Probability

The value of information is defined as the reduction in risk which results from using the information in decisions. Information is considered as being of two basic types: experience and intelligence (data). A schema for attaching quantitative measures to these concepts, within the framework of Statistical Decision Theory, is proposed. The resulting model is shown to be compatible with a number of intuitive concepts as to the proper behavior of value in this context. Applications to the design and evaluation of communications systems are considered. (Author)

AD-624 265 **See Fld. 12/1**

AD-624 266 **See Fld. 12/1**

AD-624 307 **See Fld. 12/1**

9/5. SUBSYSTEMS

AD-624 295 Fld. 9/5
CFSTI Prices: HC $2.00 MF $0.50
DEFENSE SYSTEMS LAB SYRACUSE UNIV RESEARCH CORP N Y
A HIGH PERFORMANCE LOG VIDEO AMPLIFIER,
by Paul E. Harris. Oct 65, 30p. Rept. no. dsl-R-136
Contract Nonr-4686 (00) ,Nonr-2556 (00)
Unclassified report

Descriptors: (*Video amplifiers, Logarithmic amplifiers), Sensitivity, Circuits, Performance (Engineering), Diodes (Semiconductor), Recovery

The report describes a logarithmic video amplifier having high sensitivity (0.1 millivolt), wide dynamic range (80 db); good pulse response (0.3 microsecond rise time), and very short recovery time (2 microseconds). Each of these desirable features is readily obtainable by itself, but their simultaneous realization is rare. The secret of success of this design lies in the automatic means of bias stabilization of the logging stage. This permits building a complete amplifier having only one DC blocking capacitor, thus minimizing the recovery time problem. The circuit can handle a wide range of pulse width and duty cycle. Widths between 1/2 microsecond and several hundred microseconds are appropriate at duty cycles to at least 50 per cent. Consideration of the high performance circuit is preceded by a review of approaches to log amplifier design. Finally, a method is shown for improving sensitivity at the expense of recovery time. (Author)

AD-624 304 Fld. 9/5, 20/14, 17/9
CFSTI Prices: HC $2.00 MF $0.50
ELECTRONIC DEFENSE LABS SYLVANIA ELECTRONIC SYSTEMS-WEST MOUNTAIN VIEW CALIF
SHF SEQUENTIAL LOBING SYSTEM.
Technical memo.,
by Peter Koert, Robert Ruttenberg, and Roy L. Rogers. 28 May 65, 39p. Rept. no. edl-M-788
Contract DA-36-039-AMC-03404 (E)
Unclassified report

Descriptors: (*Antenna lobes, Sequential analysis), (*Sequential analysis, Antenna lobes), (*Tracking, Horn antennas), (*Horn antennas, Tracking), Broadband, Antenna feeds, Antenna arrays, Beams (Electromagnetic), Correlation techniques, Superhigh frequency

This report describes the characteristics of a broadband sequential-lobing array and the performance of a beam-forming network designed for a SHF (1 to 11Gc) tracking system. Tracking is accomplished by comparing the signals received from beams directed off the boresight axis. The beams are formed by sequentially alternating the phase between four lens-corrected double-ridged horns in a four-horn array. (Author)

AD-624 308 Fld. 9/5
CFSTI Prices: HC $2.00 MF $0.50
SYLVANIA ELECTRONIC SYSTEMS-EAST WALTHAM MASS
SURFACE WAVE BEHAVIOR IN PHASED ARRAYS.
Quarterly progress rept. no. 1.
28 Oct 65, 31p. Rept. no. q763-1
Contract AF30 (602)-3886 ,ARPA Order-723
Unclassified report

Descriptors: (*Antenna arrays, Impedance matching), (*Antenna radiation patterns, Antenna arrays), Radar antennas, Radar scanning, Antenna components, Polarization, Scanning, Phase measurement, Radiofrequency power

Mutual coupling in phased arrays causes their active impedance to vary with the electrical phasing used to scan the array. Large impedance mismatches can accrue if many coupling contributions add in-phase. This happens when the steering phase advance equals the mutual coupling phase delay between consecutive elements. For these critical scan directions, reflections can be very large and the antenna array will transmit or receive very little power as evidenced by deep holes in the element radiation pattern. Element radiation pattern and active array mismatch are shown to be equivalent representations of phased array scanning performance. A large, flat, uniformly spaced, array of identical elements is analyzed. A relation is found between the critical scan angle and mutual coupling coefficients. Radiation pattern and coupling phase measurements in an array are presented in support of the analysis. (Author)

AD-624 478 Fld. 9/5, 17/7, 1/3
CFSTI Prices: HC $2.00 MF $0.50
DENVER RESEARCH INST COLO
RESEARCH ON NEW TYPES OF ANTENNA SYSTEMS FOR THE FREQUENCY RANGE 30-1000 MC.
Rept. for 4 Apr 64-4 Jun 65,
by Warren R. Wheeler. 5 Nov 65, 40p. Rept. no. dri-2290 ,RR-1
Contract NOw-64-0416-d Proj. DRI-447
Unclassified report

Descriptors: (*Direct finding, Antennas), (*Aircraft antennas, Performance (Engineering)), Navigational aids, Tests, Antenna radiation patterns

The report presents the results of tests made on an AS-578/ARA-25 antenna. This antenna is part of an AN/ARA-25 direction finding system. The antenna and the direction finding system are analyzed and found to be adequate. The antenna itself does have low gain but possible higher gain antennas are too large. A system for reducing the effect of near metal objects is presented. Appendix A is a theoretical development of the pattern function for this type of antenna. (Author)

AD-624 512 Fld. 9/5
CFSTI Prices: HC $2.00 MF $0.50
ADVANCED TECHNOLOGY CORP TIMONIUM MD
DIODE, MILLIMETER WAVE TYPE MIXER (3.2 MM).
Quarterly rept. no. 7, 1 Dec 64-28 Feb 65,
by R. J. Bauer. 31 Mar 65, 26p. Contract DA-36-039-AMC-02347 (E) Proj. DA-1P6-22001-A-056
Unclassified report

See also AD-615 743.

Descriptors: (*Mixers (Electronics), Diodes (Semiconductors)), (*Diodes (Semiconductors, Mixers (Electronics)), Millimeter waves, Gallium alloys, Arsenic alloys, Crystal holders, Hermetic seals, Electrical properties, Standing wave ratios, Noise (Radio)

A step by step fabrication procedure for the developmental models is described, starting with the preparation of the gallium arsenide semiconductor chips. This is followed by the procedure for mounting the gallium arsenide chips to the center conductor of the coaxial IF output. The diode's welded junction forming technique is next described. When an electrically good 94 GHz mixer diode is obtained, the integral waveguide diode mount is then hermetically sealed in dry nitrogen using mica windows. The test setups and procedures for making all of the electrical measurements are described. These measurements include the transducer loss, conversion loss, RF VSWR, IF VSWR, LO power, bias voltage and current, and finally crystal noise ratio (including the local oscillator noise contribution). The actual fabrication of the 53 developmental mixer diodes is approximately 70 percent complete at the end of the report period. (Author)

AD-624 603 Fld. 9/5
CFSTI Prices: HC $3.00 MF $0.75
RADIATION INC MELBOURNE FLA ANTENNA AND MICROWAVE ENGINEERING SECTION
STUDY OF SPECIAL BEAMSHAPING ANTENNAS,
Quarterly rept. no. 3, 1 Mar-31 Aug 65,
by H. E. Bartlett, and R. K. Oishi. 31 Aug 65, 62p. Rept. no. 8
Contract DA-28-043-AMC-00389 (S) Proj. DA-1-R-3-32-101-D-253
Unclassified report

Continuation of Contract DA-36-039-AMC-03310 (E).

Descriptors: (*Antenna arrays, Space communication systems), (*Dielectrics, Antennas), Antenna feeds, Reflectors, Performance (Engineering), Gain, Design, Portable, Antenna components, Radomes, Horn antennas, Antenna radiation patterns, Rods, Expanded plastics, Antenna apertures

The report describes the progress during the past six months of a program to develop dielectric elements for use in lightweight, highly-transportable satellite communications antennas. A very large part of the effort during this period went into the publication of a Design Plan describing a four-element array of reflector antennas using Dielguide Cassegrain feeds. This array provides the gain of a conventional fifteen foot parabolic antenna with a total weight (array, pedestal, and trailer) of 663 pounds. A brief description of this array and its performance characteristics (taken from the Design Plan) are presented. Progress on the development of a Monopulse DIELGUIDE Cassegrain feed is reported. The thick-wall tube dielectric end-fire element has been investigated and found to have about 1-1/2 times the width and 1/4 the

length of a dielectric rod antenna with the same gain. (Author)

AD-624 614 Fld. 9/5
CFSTI Prices: HC $3.00 MF $0.75
TEXAS INSTRUMENTS INC DALLAS SEMICONDUCTOR-COMPONENTS DIV
LOW-NOISE L-BAND TRANSISTOR AMPLIFIER.
Quarterly rept. no. 4, 1 Mar-31 May 65,
by Leslie W. Read. 11 Oct 65, 60p. Rept. no. ti-03-65-97
Contract DA-28-043-AMC-00109 (E) Proj. DA-1P6-22001-A-056-04-32
Unclassified report

See also AD-616 331.

Descriptors: (*Transistor amplifiers, L-band), Noise (Radio), Germanium, Transistors, Gain, Phase shift, Circuits, Microwave equipment

The report summarizes the work done during the period from 1 March 1965 to 31 May 1965 to design and develop a low-noise L-band amplifier, utilizing germanium planar transistors. The amplifier consists of three stages. Stripline interstages are used to transform the transistor input of one stage to an appropriate load for the preceding stage. The amplifier provides a flat gain, a linear phase shift and a low noise figure in the L-band region (1.2-1.4 GHz). The basic design techniques for the prediction of circuit performance at lower frequencies are valid in the L-band region. The noise figure of the amplifier can approach the theoretical minimum over fairly narrow bands. Future work in microwave characterization will probably be done with 50 ohm source impedances and load terminations on the devices. Further work is necessary to investigate the compromises involved in minimizing noise figure over a much broader bandwidth. (Author)

AD-624 642 Fld. 9/5, 13/8
CFSTI Prices: HC $2.00 MF $0.50
SYSTEMS INC ORLANDO FLA
PEM FOR FILTER, QUARTZ CRYSTAL, 112 MC, TYPE EL-FR (X-2) AND CRYSTAL UNIT, FILTER, QUARTZ TYPES CR- (XM-64)/U AND CR- (XM-65)/U.
Quarterly progress rept. no. 2, 1 Feb-30 Apr 65. 30 Apr 65, 30p. Contract DA-36-039-AMC-03638 (E)
Unclassified report

See also AD-614 223.

Descriptors: (*Crystal filters, Quartz), (*Quartz resonators, Very high frequency), Band-pass filters, Narrowband, Parametric amplifiers, Crystals, Design, Performance (Engineering)

Preliminary crystal designs and test results are discussed. The response characteristics of a breadboard filter using the preliminary crystal design is described. The completion of test equipment favrication is reported. (Author)

AD-624 682 Fld. 9/5
CFSTI Prices: HC $2.00 MF $0.50
AUBURN UNIV ALA
A STUDY OF THE EFFECTS OF DIELECTRIC PLUGLOADING ON SLOT ANTENNAS.
Master's thesis,
by James Robert Fyke. 24 Aug 65, 35p. Contract AF33 (608)-1207
Unclassified report

Descriptors: (*Slot antennas, Dielectrics), Electrical impedance, Resonant frequency, Performance (Engineering), Standing wave ratios, Electromagnetic fields

The problem of analytically determining the effects on the input characteristics of a slot antenna of loading the slot with a dielectric plug is examined. It is found that the values of the input impedance and resonant frequency of a dielectric plug-loaded slot antenna lie between that of a slot antenna in free space and that of a slot antenna completely surrounded with dielectric material. The problem of determining the input impedance of a slot antenna at resonance in a dielectric medium in terms of the input impedance of a slot antenna at resonance in free space is solved. The results of the test on a slot antenna with a dielectric plug are presented. (Author)

AD-624 771 Fld. 9/5, 9/3
CFSTI Prices: HC $1.00 MF $0.50
GRUMMAN AIRCRAFT ENGINEERING CORP BETHPAGE N Y RESEARCH DEPT
A DISTRIBUTIONAL STUDY OF THE REAL FREQUENCY BEHAVIOR OF PASSIVE SYSTEMS.
Memo. rept.,
by M. R. Wohlers. Sep 65, 8p. Rept. no. rm-294J
AFOSR 65-2306
Unclassified report

Prepared for presentation at the Allerton Conference on Circuit and System Theory, Urbana, Ill., 20-22 Oct 65.

Descriptors: (*Electrical networks, Passive), Circuits, Theorems, Distribution theory, Electrical engineering

The purpose of this paper is to present two theorems that constitute a realizability theory for passive n-ports in which all statements are given directly on the real frequency axis. To achieve the generality desired, i.e., to consider more general systems than rational ones, the theory of distributions has been used as the vehicle for the analysis. (Author)

AD-624 791 Fld. 9/5
CFSTI Prices: HC $3.00 MF $0.75
SYLVANIA ELECTRONIC SYSTEMS WILLIAMSVILLE N Y
ELECTRONICALLY STEERABLE ARRAY: CHANGE A.
Quarterly technical rept. no. 2,
by T. R. Schiller, P. F. Weiss, and W. S. Heath. Nov 65, 70p. Contract AF30 (602)-3041 Proj. AF-4506 Task 450604
RADC TR-65-228
Unclassified report

See also AD-617 140.

Descriptors: (*Antenna arrays, Millimeter waves), (*Millimeter waves, Antenna arrays), (*Electronic scanners, Ferromagnetic materials), Gain, Scanning, Antenna configurations, Antenna apertures, Antenna feeds, Antenna radiation patterns

The report describes the effort expended during the second quarter on the Engineering Change 'A' portion of the Electronically Steerable Array Program to design and build a high gain, electronically steerable, millimeter antenna system. During this period, design concepts for the breadboard model antenna system were formulated, methods for two-dimensional scanning were investigated, both theoretically and experimentally, and hexagonal ferrite samples were evaluated with respect to their application in scanning millimeter beams. Construction also started on a dual-element ferrite scanner array which will be used in further tests to determine the feasibility of using such scanners as array elements. (Author)

AD-624 293 See Fld. 13/8

AD-624 359 See Fld. 20/5

AD-624 360 See Fld. 9/1

AD-624 559 See Fld. 18/8

AD-624 654 See Fld. 17/2

AD-624 669 See Fld. 17/2

AD-624 707 See Fld. 20/3

AD-624 843 See Fld. 20/14

10/1. CONVERSION TECHNIQUES

AD-624 313 Fld. 10/1, 9/1
CFSTI Prices: HC $3.00 MF $0.75
MASSACHUSETTS INST OF TECH CAMBRIDGE DEPT OF ELECTRICAL ENGINEERING
INVESTIGATION OF GERMANIUM DIODES FOR THERMO-PHOTOVOLTAIC ENERGY CONVERTORS.
Final technical rept. 15 Sep 64-15 Sep 65,
by Atif Debs, Gordon Taylor, Robert Siegel, and Bruce D. Wedlock. 15 Sep 65, 82p. Contract DA-44-009-AMC-625 (T)
Unclassified report

Descriptors: (*Diodes (Semiconductor), Thermoelectricity), (*Thermoelectricity, Diodes (Semiconductor)), Germanium, Energy conversion, Effectiveness, Photoelectric cells (Semiconductor)

A theoretical solution to the planar P-I-N diode problem has been obtained and V-I curves plotted. Experimentally obtained diodes fit the expected results closely with the result that conversion efficiencies can be calculated quite accurately for planar devices. Back surface junction diodes were fabricated and a method found for obtaining a theoretical solution to the V-I problem; but results have not been obtained for this case. Conversion efficiencies of 2% were obtained at 5 watts sq cm incident intensity (back surface device) even though collection efficiency was less than 50%. By using evaporation techniques, junctions can be placed closer together and efficiencies of 4%5% achieved at 10 watts sq cm. These figures are not corrected for reflectivity and spectral emission of the source below the bandgap. (Author)

AD-624 836 Fld. 10/1
CFSTI Prices: HC $1.00 MF $0.50
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
AN ANALYSIS OF THE RESULTS OF INVESTIGATIONS OF A MODEL TURBINE STAGE USING COMPUTERS,
by R. Puzyrewski, and T. Jankowski. 24 Nov 65, 15p. Rept. no. ftd-TT-65-1026
TT 65-64802
Unclassified report

Unedited rough draft trans. of Energomashinostroenie (USSR) v10 n10 p17-20 1964.

Descriptors: (*Turbines, Cascade structures), (*Cascade structures, Mathematical analysis), Models (Simulations), Computers, USSR

A solution is given to the problem of determining the characteristics of cascades (phi, psi, and outlet angle) from experiments on a model turbine stage. (Author)

AD-624 532 See Fld. 6/11

10/2. POWER SOURCES

AD-624 736 Fld. 10/2
CFSTI Prices: HC $1.00 MF $0.50
RESEARCH LAB OF ELECTRONICS MASS INST OF TECH CAMBRIDGE
RESEARCH ON NEW CONCEPTS IN ENERGY CONVERSION.
Quarterly technical progress rept. no. 9, 1 Sep-30 Nov 65,
by William D. Jackson, George A. Brown, Jack L. Kerrebrock, Myron A. Hoffman, and Gordon

C. Oates. 15 Dec 65, 8p. Contract AF33 (615)-1083 Proj. 5350 Task 535004

Unclassified report

Descriptors: (*Magnetohydrodynamic generators, Scientific research), Reviews, Liquid metals, Thermionic converters, Alkali metals, Vapors

The report gives a technical review of progress of research covered during the reporting period. It is arranged in two sections. Section I states the research aims of the Group. Section II gives a resume of progress and future plans in each of the current areas of investigation. At the present time, two forms of closed-cycle magnetohydrodynamic power-generation systems and thermionic energy converters are being investigated.

AD-624 838 Fld. 10/2
CFSTI Prices: HC $3.00 MF $0.75
LITTON SYSTEMS INC WALTHAM MASS
MICROELECTRONIC POWER SUPPLIES.
Final phase rept.,
by F. G. Bernhard. 16 Nov 65, 81p. Contract NOw-63-0749di Task RAVO3J005/2021/F021-02-02
NADC-AE 6520

Unclassified report

Descriptors: (*Power supplies, Microminiaturization (Electronics)), Naval equipment, Reliability (Electronics), Performance (Engineering), Electrical properties, Packaging, Environmental tests

The objectives of the program represent an attempt by a govermental agency to develop standard power supplies electrically and mechanically compatible with state-of-the-art microelectronic systems, with particular emphasis on reliability improvement, weight reduction, and maximum possible use of microelectronic devices. The developmental model power supplies as finally submitted to the Navy demonstrated performance characteristics well within the final acceptance criteria. (Author)

AD-624 668 **See Fld. 22/2**

10/3. ENERGY STORAGE

AD-624 407 Fld. 10/3
CFSTI Prices: HC $3.00 MF $0.75
GULTON INDUSTRIES INC METUCHEN N J ALKALINE BATTERY DIV
DESIGN, FABRICATION AND TESTING OF VENTED, RECHARGEABLE SILVER-CADMIUM CELLS.
Semi-annual progress rept. 6 Dec 64-6 Jun 65,
by J. A. Harmyk, and J. H. Brent,Jr.. 6 Jun 65, 77p. Rept. no. 4
Contract DA-36-039-AMC-03359 (E) Proj. DA-1C6-22001-A-053 Task 1C6-22001-A-053-02

Unclassified report

Descriptors: (*Batteries + components, Alkaline cells), (*Alkaline cells, Design), Silver, Cadmium, Maintenance, Performance (Engineering), Tests, Battery separators, Temperature, Storage

The items investigated were positive plate capacity at various silver loading levels, negative plate capacity, and dimensional stability of various separator materials under load and under no-load conditions. Based on the results of these tests, prototype cells were built and tested. These cells met the capacity requirements. A restraining load in excess of the specified limit of 20 psi and in the order of 50 to 60 psi was required to meet dimensional requirements. Tests were also run on prototype cells to determine their cycling characteristics, charge retention at 77 F and 160 F, overcharge capability, and low temperature capacity. Further work is required in the area of charge retention. The investigation was also concerned with testing of prototype cells, as well as with fabrication of separators and plates for cell assembly. (Author)

AD-624 410 Fld. 10/3
CFSTI Prices: HC $3.00 MF $0.75
GULTON INDUSTRIES INC METUCHEN N J ALKALINE BATTERY DIV
DESIGN, FABRICATION AND TESTING OF SEALED, RECHARGEABLE SILVER-CADMIUM CELLS.
Semi-annual progress rept. 6 Dec 64-6 Jun 65,
by G. M. Apgar. 6 Jun 65, 78p. Rept. no. 4
Contract DA-36-039-AMC-03358 (E) Proj. DA-1C6-22001-A-053 Task 1C6-22001-A-053-02

Unclassified report

See also AD-449 231.

Descriptors: (*Batteries + components, Alkaline cells), (*Alkaline cells, Design), Silver, Cadmium, Seals, Maintenance, Performance (Engineering), Battery separators, Storage, Tests, Dry cells

The items investigated were positive plate capacity at various silver loading levels, negative plate capacity, and dimensional stability of various separator materials under load and under no-load conditions. Based on the results of these tests, prototype cells were built and tested. These cells met the capacity requirements. A restraining load in excess of the specified limit of 20 psi and in the order of 50 to 60 psi was required to meet dimensional requirements. Tests were also run on prototype cells to determine their cycling characteristics, charge retention at 77F and 160F, overcharge capability, and low temperature capacity. Further work is required in the area of charge retention. The investigation was also concerned with testing of prototype cells, as well as with fabrication of separators and plates for cell assembly. (Author)

AD-624 589 Fld. 10/3
CFSTI Prices: HC $1.00 MF $0.50
LIVINGSTON ELECTRONIC CORP MONTGOMERYVILLE PA
LIQUID AMMONIA BATTERIES.
Monthly progress rept. no. 9.
May 65, 17p. Contract DA-28-017-AMC-1542 (A)

Unclassified report

Descriptors: (*Ammonia, Batteries + components), (*Batteries + components, Ammonia), Electrolytic cells, Liquified gases, Proformance (Engineering), Membranes, Electrodes

Twenty-seven single cell tests were conducted utilizing the same general construction parameters as during the last working period except that the rate was reduced from a nominal 100 milliampere drain for the A battery cell to a 50 milliampere rate. Twenty-four single cell tests of the B battery configuration were tested with the primary variations being two types of cathode formulation and various membrane type separators combined with dense separator materials.

AD-624 768 Fld. 10/3
CFSTI Prices: HC $2.00 MF $0.50
NAVAL ORDNANCE LAB CORONA CALIF
REVIEW OF RECENTLY DEVELOPED LIQUID AMMONIA BATTERIES,
by William C. Spindler, and Robert J. Pritchard. 4 Dec 65, 47p.

Unclassified report

Descriptors: (*Wet cells, Ammonia), (*Reviews, Wet cells), Primary cells, Batteries + components, Anodes (Electrolytic cell), Cathodes (Electrolytic cell), Electrolytes, Performance (Engineering), Magnesium, Nitrobenzenes, Mercury compounds, Sulfates, Silver compounds, Chlorides, Life expectancy, Voltage

Description, performance, and unique features of seven recently developed liquid ammonia primary reserve batteries are briefly outlined. All are liquid activated, four by the pure solvent NH3 and three by an electrolyte solution. Of the seven different cell constructions, all use Mg anodes, five have organic oxidant cathodes (metadinitrobenzene) and two inorganic (HgSO4, AgC1). Electrolyte is a neutral KSCN in six instances and an acid NH4SCN in one. Nominal peak discharge cell voltage approximates 2 V at all temperatures from -55 to +75C and at cursities from 1 to 100 mA/sq cm. Operating times range from 60 s to 72 h. Methods of activation include manual, electric, percussion, and acceleration. Activation times, except for the manual method, range from 35 ms to 3 s with no preconditioning required at any temperature. The batteries described have undergone varying degrees of laboratory and field testing but all may be regarded as operationally feasible. In 1966, at least one model should be fully documented and in limited production. (Author)

AD-624 811 Fld. 10/3
CFSTI Prices: HC $3.00 MF $0.50
NAVAL ORDNANCE LAB CORONA CALIF
CHEMOELECTRIC ENERGY CONVERSION FOR NONAQUEOUS RESERVE BATTERIES.
Quarterly rept. no. 9, Jul-Sep 65,
by R. E. Panzer, W. G. French, W. S. Harris, J. C. Daley, and G. E. McWilliams. 1 Nov 65, 56p. Task RRRE-06-017/211-1/F009-06-05,R360-FR-104/211-1/R011-01-01
NAVWEPS 8832

Unclassified report

Descriptors: (*Wet cells, Storage batteries), (*Energy conversion, Electrochemistry), Electrodes, Ammonia, Liquids, Electrolytes, Batteries + components, Potassium compounds, Amides, Solvents, Amines, Aliphatic compounds, Manganese, Anodes (Electrolytic cell), Performance (Engineering), Oxidizers

Investigation of materials for use as reference electrodes in liquid ammonia solutions was accelerated by using a polarization hysteresis method that allows rapid screening of electrodes. This method was applied to nitrided wires and disks. Models of reference electrodes of the first kind were made for use in pressurized cells. Chronopotentiometric and cyclic voltammetric techniques were applied to potassium amide and other electrolytes to determine their limiting electrochemical parameters. An investigation of the electrochemical and physical properties of ammonia-like solvent systems was begun to find a solvent with the advantages of ammonia and fewer disadvantages. As a start, the lower aliphatic amines were studied. Methylamine and ethylamine were found to be good solvents for lithium nitrate, but trimethylamine did not dissolve typical ionic compounds to form conducting solutions. The conductivity of the dilute solution increases as the solvent changes from pyridine to ethylamine to methylamine to pyridine-ammonia. Conductivity of moderately concentrated solutions was an order of magnitude less than that of ammonia solutions. Experiments conducted with single cells of 1 sq cm area indicated that solution activation produced better performance than solvent activation in cells with Mg anodes, but cells incorporating perchlorate electrolytes and an amalgamated Mg anode were erratic and will be redesigned for further study. (Author)

AD-624 668 **See Fld. 22/2**

AD-624 684 **See Fld. 18/14**

11/1. ADHESIVES AND SEALS

AD-624 752 Fld. 11/1
CFSTI Prices: HC $1.00 MF $0.50
AEROSPACE INFORMATION DIV LIBRARY OF CONGRESS WASHINGTON D C
STUDY OF THE PROPERTIES AND OF THE FEASIBILITY OF USING ORGANOBOROSILICON POLYMERS AS CONSTITUENTS OF HEAT-RESISTANT ADHESIVES,
by V. D. Solodovnik, A. B. Davydov, Z. G. Ivano-

va, Ya. I. Mindlin, and N. S. Leznov. 6 Aug 63, 10p. Rept. no. aid-T-63-97
TT 65-64788

Unclassified report

Trans. of Plasticheskie Massy (USSR) n3 p39-42 1963.

Descriptors: (*Adhesives, Heat-resistant materials), (*Polymers, Organoboranes), (*Organoboranes, Polymers), USSR, Silicon compounds, Metalorganic compounds, Complex compounds, Stability, Silanes, Boric acids

Several methods of preparing organoborosilicon polymers were investigated. Adhesives 201 and 202 have been developed on the basis of organoborosilicon polymers prepared from phenyltriethoxysilane and its mixtures with methylphenyldiethoxysilane and boric acid (sic); they are superior to currently used adhesives BC-10T and RC-350 in heat resistance and thermal stability. (Author)

11/2. CERAMICS, REFRACTORIES, AND GLASSES

AD-624 514 **See Fld. 20/5**

AD-624 595 **See Fld. 7/4**

AD-624 787 **See Fld. 18/8**

AD-624 788 **See Fld. 18/8**

11/3. COATINGS, COLORANTS, AND FINISHES

AD-624 799 **See Fld. 13/10**

11/4. COMPOSITE MATERIALS

AD-624 572 Fld. 11/4, 20/11
CFSTI Prices: HC $2.00 MF $0.50
MASSACHUSETTS INST OF TECH CAMBRIDGE AEROELASTIC AND STRUCTURES RESEARCH LAB
THE INTERIOR ELASTIC STRESS FIELD IN A CONTINUOUS, CLOSE-PACKED FILAMENTARY COMPOSITE MATERIAL UNDER UNIAXIAL TENSION,
by Henry R. Piehler. Jun 65, 42p. Rept. no. mit-ASRL-TR-132-1
Contract AF49 (638)-1463 Proj. AF-9782 Task 9782-02
AFOSR 65-1426

Unclassified report

Descriptors: (*Filaments, Composite materials), (*Composite materials, Stresses), (*Stresses, Composite materials), (*Elasticity, Boundary value problems), Filaments, Epoxy plastics, Glass textiles, Reinforcing materials, Silver, Steel, Loading (Mechanics), Tensile properties, Fiber metallurgy

Using symmetry arguments, boundary conditions are established which must hold on the lines of symmetry between neighboring filaments in an oriented filamentary composite. These conditions serve to set the problem as a special case of the mixed boundary value problem of elasticity. The composite is assumed to deform such that the normal strains in the direction of the filament axes are the same in both media. The equations of elasticity are then solved in polar coordinates so that the solution has the appropriate sixfold symmetry. The in-plane stresses are vanishingly small for the epoxy-fiberglass composite. For the silver-steel composite, the in-plane stresses reach about three percent of the average axial stress. When the filaments are close together, the periodic portions of the stress field are most important. As the filaments are more widely spaced, the stress field becomes more circularly symmetric. The phasing of the stress field is such that the radial stress is compressive at the point where the filaments are closest together and tensile at the point where the filaments are farthest apart. In all cases, the composite Young's modulus varies linearly with filament fraction.

AD-624 760 Fld. 11/4, 13/6
CFSTI Prices: HC $2.00 MF $0.50
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
PECULIARITIES OF CREATION OF HEAT-RESISTANT FRICTIONAL MATERIALS,
by G. A. Georgievskii. 18 Nov 65, 30p. Rept. no. ftd-MT-64-483
TT 65-64791

Unclassified report

Edited machine trans. of mono. Povyshenie Effektivnosti Tormoznykh Ustroistv. Svoistva Friktsionnykh Materialov, Moscow, 1959 p93-109.

Availability: Microfiche only after original copies exhausted.

Descriptors: (*Heat-resistant materials, Friction), (*Friction, Heat-resistant materials), Wear resistance, Binders, Oxidizers, Surface properties, Phenolic plastics, Asbestos, Braking, Brakes, USSR

Principles of creation of frictional materials for work at high temperatures and pressures reduce to the following: use the friction series and series of wear-resistance to make the selection of friction ingredients; with this the thermal conductions and the influence of ingredients on counterbody of the friction pair should be taken into account. The binder should be heat-resistant, should preserve good elastic properties at high temperatures, and also should possess the ability to form coke-like products with good mechanical properties. The binder should have high adhesional properties. The content of organic binding should be minimum; this favors application of ingredients with little developed active surface. Increase and stabilization of coefficient of friction can be attained by: (a) introduction of oxidizers, promoting a lowering of the formation of liquid products of destruction and retaining the reduction of reactors; (b) additional heat treatment of friction material at a temperature of 400-600 degrees without an oxidizing medium. Every recommendation should be carried out in such a manner as to ensure the creation of frictional layer as a result of the use of heat emitted during braking. (Author)

11/6. METALLURGY AND METALLOGRAPHY

AD-624 267 Fld. 11/6
CFSTI Prices: HC $4.00 MF $0.75
SYRACUSE UNIV RESEARCH INST N Y DEPT OF CHEMICAL ENGINEERING AND METALLURGY
DEFORMATION CHARACTERISTICS OF METALS AND ALLOYS.
Final rept.,
by V. Weiss, R. Kot, and D. Oelschlagel. Sep 65, 103p. Rept. no. met.E-1241-0965-FR
Contract NOw-65-0090-f

Unclassified report

Descriptors: (*Steel, Deformation), (*Titanium, Deformation), Phase studies, Transformations, Creep, Stresses, Fatigue (Mechanics), Fracture (Mechanics), Tensile properties

The effects of deformation during a phase transformation were studied on the three plain carbon steels AISI 1018, 1045 and 1095, the bearing steel AISI 52100 and commercially pure titanium. Specimens subjected to a constant load were cycled through the alpha reversibly yields gamma or alpha reversibly yields beta transformation range. A considerable increase in the creep rate is observed due to the occurrence of the phase transformations. For the steels, the elongation per complete temperature cycle increases linearly with the applied stress up to 2500 psi and elongations of 500 percent and more are observed on specimens temperature cycled to complete failure. It is further shown that on heating (alpha yields gamma transformation) the steels investigated deform more than on cooling (gamma yields alpha transformation). Titanium also exhibits a linear relationship between the elongation per temperature cycle and the applied stress, and gives an elongation of approx. 300% when temperature cycled to failure. (Author)

AD-624 269 Fld. 11/6
CFSTI Prices: HC $2.00 MF $0.50
NAVAL CIVIL ENGINEERING LAB PORT HUENEME CALIF
POTENTIOSTATIC CORROSION STUDIES OF IRON, TYPE-304 AND TYPE-321 STAINLESS STEEL.
Technical rept. June 64-May 65,
by Howard A. Porte. Dec 65, 40p. Rept. no. tr-R-423
Proj. Y-R011-01-01-035

Unclassified report

Descriptors: (*Iron, Corrosion), (*Stainless steel, Corrosion), (*Corrosion, Electrostatics), Polarization, Electrochemistry, Electodes, Corrosion inhibition, Voltage, Electrolysis, Surface properties

Important in the control and prevention of corrosion, electrochemical characteristics of iron and two types of stainless steel in various electrolyte systems were investigated as part of a long-range study of the mechanisms of the electrochemical and physical transformations that occur at electrode-electrolyte interfaces. The anodic potentiostatic polarization of iron was investigated in deaerated 1N sulfuric acid, deaerated and aerated borate buffer solution (pH 8.4), and in deaerated and aerated seawater. The effects of potential rate change and chloride ion concentration on polarization characteristics were studied in the borate buffer and sulfuric acid solutions. Polarization curves were determined for Type-321 stainless steel in deaerated 1N sulfuric acid and in deaerated borate buffer; the effect of chloride ion concentration was studied in both solutions. Polarization experiments were performed on Type-304 stainless steel in deaerated 1N sulfuric acid; the effect of cathodic pretreatment was studied. Electrochemical polarization curves have proved to be useful in predicting which of a group of alloys would be the most corrosion resistant in a particular environment. (Author)

AD-624 284 Fld. 11/6
CFSTI Prices: HC $2.00 MF $0.50
NAVAL ENGINEERING EXPERIMENT STATION ANNAPOLIS MD
MAGNETIC CHARACTERISTICS OF 'NON-MAGNETIC' MATERIALS PERMEABILITY AND COERCIVE FORCE IN STRONG FIELDS 100-200 OERSTEDS,
by M. R. Gross, and H. C. Ellinghausen. 6 Apr 51, 30p. Rept. no. ees-4E (1)66904 ,EES-4P (1)66918
Proj. NS-011-083 ,NS-013-118

Unclassified report

Descriptors: (*Alloys, Magnetic properties), Magnetic fields, Brass, Bronze, Copper alloys, Nickel alloys, Castings, Austenite, Stainless steel, Steel, Manganese alloys, Permeability, Force (Mechanics), Resistance (Electrical), Mechanical properties

The report contains data on a wide variety of materials such as brasses, bronzes, copper-nickel alloys, nickel base alloys, wrought and cast austenitic stainless steels, austenitic stainless steel weld metals, and austenitic manganese steels. Tabulations include chemical composition, mechanical properties, normal permeability, coercive force and resistivity data for the materials tested. The permeability and coercive force measurements were performed in strong magnetic field (100-200

oersteds). The effect of composition and cold deformation on the magnetic properties of the various materials is discussed and considerable attention is focused on the austenitic stainless steels. In addition to general conclusions, the report contains generalizations as to the expected magnetic behavior of the various types of materials. (Author)

AD-624 377 Fld. 11/6, 7/2
CALIFORNIA UNIV LOS ANGELES DEPT OF CHEMISTRY
ARTIFICIAL METALS: INSB, THE SN ALLOYS WITH INSB, AND METALLIC INTE,
by A. J. Darnell, and W. F. Libby. 9 Apr 64, 9p.
Contract AF-AFOSR-245-64 Proj. AF-9710
Task 971003
AFOSR 65-1664
Unclassified report

Availability: Published in the Physical Review, V135 N5A PA1453-9 Aug 31 1964. Copies to DDC users only.

Descriptors: (*Metals, Synthesis (Chemistry)), (*Indium alloys, Antimony alloys), (*Tin alloys, Indium alloys), Tellurium alloys, High-temperature research, Highpressure research, Crystal lattice, Heat of formation, Compressive properties, Resistance (Electrical), Sound transmission, Hardness, Magnetic properties, Cryogenics, Density, Intermetallic compounds

AD-624 539 Fld. 11/6, 13/5, 1/3
CFSTI Prices: HC $2.00 MF $0.75
LOCKHEED-GEORGIA CO MARIETTA
EVALUATION OF AIRCRAFT EXPERIMENTAL FASTENERS.
Progress rept. 1 Nov 64-15 Sep 65,
by W. C. Herron, and D. J. Lipscomb. 30 Sep 65, 43p. Rept. no. ER-6959-4
Contract AF33 (615)-1353
Unclassified report

Descriptors: (*Mechanical fasteners, Airplane panels), (*Coatings, Corrosion inhibition), Rivets, Bolts, Corrosion, Plating, Anodic coatings, Aluminum coatings, Paint primers, Sealing compounds, Aluminum, Titanium, Steel, Cadmium

The purpose of this program is to evaluate the corrosion protection provided by coatings applied to various fasteners used for aircraft skin attachment. On a production HC-130H aircraft, 7,590 fasteners were installed in four test areas. Fasteners included aluminum and titanium rivets, titanium Hi-loks, and steel lockbolts. Coatings include cadmium plating, anodizing, aluminum coatings, zinc chromate primer and aircraft sealant. The test aircraft has been delivered to the Air Force and will be jointly surveyed in the field by the Contractor and the Air Force Materials Lab for an 18-month period at 6-month intervals.

AD-624 651 Fld. 11/6
CFSTI Prices: HC $2.00 MF $0.50
NEW HAMPSHIRE UNIV DURHAM
THE EFFECTS OF CYCLIC STRESSING ON PREFERRED ORIENTATION OF POLYCRYSTALLINE ALUMINUM.
Master's thesis,
by George Noboru Yamamoto. Jun 65, 40p.
Contract AF33 (608)-1256
Unclassified report

Descriptors: (*Aluminum, Grain structures (Metallurgy)), (*Grain structures (Metallurgy), Fatigue (Mechanics)), Stresses, Deformation, Grain boundaries, Surface properties, Metallography, X-ray diffraction analysis

In spite of having caused severe macroscopic transgranular plastic deformation, the push-pull cyclic loading process does not appear to produce preferred orientation of the surface layers. Further, the surface morphology does not appear to be conclusively related to pre-existing preferred orientations. Conclusions are based on commercially pure aluminum, a metal with unusually high stacking fault energy, so that they should not be extended to other facecentered-cubic metals that twin easily such as copper and austenitic stainless steel. Since the deformation extends across grain boundaries future efforts might well be devoted to oriented metallographic studies comparing grain boundaries before and after cyclic stressing. Such studies may reveal much about the slip geometry. (Author)

AD-624 691 Fld. 11/6, 20/1
NAVAL ORDNANCE TEST STATION CHINA LAKE CALIF
INVERSE MAGNETOSTRICTIVE EFFECT OF ULTRASONIC STRESS WAVES IN STEEL.
Research rept.,
by B. Langenecker. 26 Apr 65, 9p. Rept. no. nots-TP-3988
Task RRMA-24-051/216-1/R007-01-01
NAVWEPS 9009
Unclassified report

Availability: Published in the Journal of the Acoustical Society of America V38 N2 P234-8 Aug 1965. Copies to DDC users only.

Descriptors: (*Steel, Ultrasonic radiation), (*Ultrasonic radiation, Stresses), (*Magnetostrition, Steel), Ferromagnetic materials, Deformation, Zone melting, Fracture (Mechanics), Crystals

The pronounced changes in the state of magnetization of ultrasonically irradiated SAE 1019 steel are utilized to determine acoustic stresses, modes of propagation of 20-kc/sec ultrasonic-stress waves, and variations in these parameters as functions of acoustic energy density (< or = 10 to the 9th power erg/cu cm) superimposed static tensile stress (< or = 10 to the 10th power dyn/sq cm), and temperature (< or = Curie point). The quantitative results from these studies are fundamental for research on mechanisms of plastic deformation, zone melting, and fracturing of metal crystals by high-amplitude ultrasonic stress waves. The results also reveal potentials of inverse magnetostriction in investigations on magnetization, and relations between magnetostriction and Young's modulus, phase transition, and phenomena associated with the internal structure of the materials. (Author)

AD-624 772 Fld. 11/6, 13/8
CFSTI Prices: HC $1.00 MF $0.50
LEHIGH UNIV BETHLEHEM PA INST OF RESEARCH
STUDY OF THE EFFECT OF SOLIDIFICATION STRUCTURES ON THE STRENGTH OF METALS.
Quarterly progress rept. no. 2,
by R. Wayne Kraft, and R. W. Hertzberg. 30 Nov 65, 6p. Contract DA-36-038-AMC-2723 (A)
Unclassified report

Descriptors: (*Eutectics, Microstructure), (*Mechanical working, Eutectics), Magnesium alloys, Aluminum alloys, Nickel alloys, Intermetallic compounds, Castings, Anisotropy, Extrusion, Drawing (Machine processing), Fibers, Reinforcing materials

Progress is reported on a study of the mechanical working of controlled eutectics and an exploratory program on the mechanical properties of light-metal controlled-eutectic alloys. Data obtained shows that ingots of the Al3Ni-Al eutectic (with an imperfect fiber reinforcement, i.e. a colony structure) can be drawn and hydrostatically extruded. In the other area of research progress has consisted of the production of the first heats of three magnesium base eutectic alloys. Metallographic examination and other data give evidence that it will be possible to form the desired anisotropic structure in these alloys.

AD-624 257 **See Fld. 13/8**

AD-624 427 **See Fld. 11/7**

AD-624 543 **See Fld. 7/4**

AD-624 644 **See Fld. 20/11**

AD-624 787 **See Fld. 18/8**

AD-624 788 **See Fld. 18/8**

11/7. MISCELLANEOUS MATERIALS

AD-624 427 Fld. 11/7, 11/6, 11/9, 20/12, +
CFSTI Prices: HC $4.00 MF $0.75
NORTHWESTERN UNIV EVANSTON ILL MATERIALS RESEARCH CENTER
MATERIALS RESEARCH CENTER SIXTH ANNUAL REPORT, 1 FEBRUARY 1965 TO 30 SEPTEMBER 1965.
30 Sep 65, 124p. Contract SD-67
Unclassified report

Descriptors: (*Materials, Scientific research), Reports, Solids, Solid state physics, Semiconductors, Plastics, Crystallography, Mechanics, Metalorganic compounds, Inorganic compounds, Crystals

Contents: Dissipation of energy due to coupling of thermal and mechanical effects; Syntheses and properties of organometallic compounds; Theory of transport and other properties of metals and plasmas; Effect of interaction of imperfections on the deformation mechanism; Microwave investigation of semiconductors and magnetic materials; Electronic properties of solids; Diffraction studies of materials; Polymer studies; Boundary value problems in the elastic theory of dislocations; Studies of semiconducting properties of gray tin; Precipitation studies in solids; Properties of high temperature materials; Thin films and superconductors; Cross linking, chain conformation, and crystallization studies in high polymers; Structure and phase transformations; Ultra thin metal crystals; Theoretical studies of proton transfer mechanisms in hydrogen-bonded solids; Proton relaxation time in polymers; Structural studies by diffraction methods; Sintering kinetics; Anisotropic semiconductors; Studies of the defect solid state; Band structure of semiconductors and theory of superfluids; Experimental determination of fermi surfaces; Direct observation of lattice imperfections and their relation to mechanical and physical properties; Mathematical theory of dislocations, plasticity, viscoelasticity and fracture; Ionization potentials of inorganic molecules by photoionization; Fluorescent lifetimes of large molecules; Solid state nuclear resonance studies; Synthesis and structures of inorganic compounds.

AD-624 846 Fld. 11/7, 7/4
CFSTI Prices: HC $3.00 MF $0.50
LITTLE (ARTHUR D) INC CAMBRIDGE MASS
TEMPERATURE DEPENDENCE OF THE INFRARED SPECTRA OF SELECTED DIELECTRICS.
Final rept. Jan 63-Jan 65,
by J. R. Jasperse, E. P. Marram, and O. M. Clark.
20 Jan 65, 52p. Rept. no. 65318
Contract AF19 (628)-2767 Proj. AF-5621 Task 562105
AFCRL 65-25
Unclassified report

Descriptors: (*Dielectrics, Spectra (Infrared)), (*Spectra (Infrared), Dielectrics), Temperature, Lithium compounds, Fluorides, Magnesium compounds, Oxides, Cryogenics, Experimental data, Dielectric properties, Damping, Crystals, Harmonic analysis

The infrared spectra was measured for LiF and MgO at temperatures ranging from 7.5K up to near the melting point for each crystal. The data were curve-fitted to a two-pole, damped, harmonic oscil-

lator model and a temperature dependent expression for the dielectric constant was determined. These expressions were compared in detail to existing quantum mechanical models for the dielectric susceptibility and reasonably good agreement between theory and experiment was observed. However, some deviations at low temperatures appear between experiment and the best quantum mechanical models available. (Author)

AD-624 659 See Fld. 8/13

11/8. OILS, LUBRICANTS, AND HYDRAULIC FLUIDS

AD-624 451 Fld. 11/8, 13/8
CFSTI Prices: HC $3.00 MF $0.75
MASSACHUSETTS INST OF TECH CAMBRIDGE METAL WORKING SECTION
DEVELOPMENT OF A METHOD FOR EVALUATING LUBRICANTS FOR COLD WORKING METALS.
Final rept.
1 Jul 59, 63p. Contract DA-19-020-ORD-3858
WAL TR-364/65
Unclassified report

Descriptors: (*Lubricants, Cold working), (*Test methods, Lubricants), Compressive properties, Performance (Engineering), Friction, Rolling (Metallurgy), Drawing (Machine processing), Aluminum alloys, Iron, Differential equations

The possibility of a simple compression test for the evaluation of lubricants in cold working processes has been investigated using Armco iron and aluminum alloy 7075-0 as principal experimental materials. The test is useful for eliminating very poor lubricants and selecting the better ones for further evaluation in the metal working processes under consideration. The results indicated that there are differences in compression, rolling, piercing and drawing that make a complete correlation for a series of lubricants in all four processes impractical. Experiments using aluminum alloy 1100-F showed that one of these differences, the amount of sliding displacement between tool and workpiece, influences forces appreciably through its effect on lubricant-film breakdown. Coefficients of friction have been calculated for a number of lubricants in compression, drawing and rolling. (Author)

AD-624 594 Fld. 11/8, 19/6
CFSTI Prices: HC $2.00 MF $0.50
NAVAL RESEARCH LAB WASHINGTON D C
FACTORS AFFECTING THE ICING RESISTANCE OF LUBRICANTS FOR AIRCRAFT ORDNANCE.
Final rept.,
by H. R. Baker, and R. N. Bolster. 21 Oct 65, 38p. Rept. no. nrl-6329
Proj. RR-001-01-43-4752
Unclassified report

Descriptors: (*Lubricants, Aircraft guns), (*Aircraft guns, Lubricants), Low-temperature lubricants, Military requirements, Corrosion inhibition, Freezing point depressants, Greases, Moistureproofing, Firing tests (Ordnance), All-weather aviation

Recent samples of the all-weather semifluid lubricant for aircraft ordnance, both from manufacturers and from Navy stocks, have failed to meet the cold-sweat-cold gun firing test required by Military Specification MIL-L-19701 (NOrd). These failures were due to ice adhesion attendant on the poor water resistance of the lubricants. The probable cause of the loss in water resistance was the presence in the lithium stearate thickener of surface-active impurities such as sodium soaps and soaps of myristic and oleic acids. These impurities can be detected by measurements of surface tension lowering. It is probable that the water resistance of other lithium stearate thickened greases are also affected by these impurities. The investigation established that variations in raw materials other than the soap were not major contributors to the difficulties encountered. A lubricant of altered formulation has been developed and shown to be superior to the original lubricant. Variations in the consistency of the improved lubricant over a wide temperature range were found to be much less than those of the original lubricant. Resistance to water and to ice adhesion are increased. This material has successfully lubricated the Mk 12 machine gun equipped with the Mk 7 pneumatic feeder under ambient temperature and cold-sweat-cold conditions. This formulation retains all of the useful properties of the original lubricant, such as compatibility with MIL-P-5516 oil-resistant rubber, resistance to evaporation loss, corrosion inhibition, and antiwear protection. (Author)

AD-624 750 Fld. 11/8, 18/8
CFSTI Prices: HC $1.00 MF $0.50
AEROSPACE INFORMATION DIV LIBRARY OF CONGRESS WASHINGTON D C
RADIATION STABILITY OF LUBRICANTS,
by Yu. S. Zaslavskii. 9 Nov 62, 4p. Rept. no. aid-62-177
TT 65-64786
Unclassified report

Exploitation of mono. Radiatsionnaya Stoykost Smazochnykh Materialov, Moscow, 1961 158p.

Descriptors: (*Lubricants, Stability), (*Radiation damage, Lubricants), Manufacturing methods, Test methods, Oils, Greases, Hydraulic fluids, Reactor system components, USSR

A bibliographical description, statement of the purpose and coverage of the books, and a translation of the table of contents with brief annotations are given. The book is a compilation of non-Soviet data on radiation stability of lubricants. It reflects the scope of Soviet interest in the field.

11/9. PLASTICS

AD-624 382 Fld. 11/9, 20/11, 20/2
MASSACHUSETTS UNIV AMHERST POLYMER RESEARCH INST
DYNAMIC BIREFRINGENCE AND MECHANICAL LOSS SPECTRA OF CRYSTALLINE POLYMERS,
by Ryo Yamada, and R. S. Stein. 1965, 8p. Contract DA-ARO (D)-31-124-G469 AROD 4051:11
Unclassified report

Availability: Published in Journal of Applied Physics, V36 N10 P3005-12 Oct 1965. Copies to DDC users only.

Descriptors: (*Polymers, Crystal structure), (*Refraction, Polymers), (*Mechanical properties, Polymers), (*Molecules, Motion), Strain (Mechanics), Stresses, Optical properties, Crystal lattice defects, Deformation, Polyethylene plastics, Nylon

The variation of the real parts of the dynamic modulus E', the dynamic strain-optical coefficient K', the mechanical loss tangent, and the optical loss tangent have been measured as a function of temperature between -40 and +120C at constant frequency of 1 cps for low-density polyethylene, high-density polyethylene, polypropylene, and nylon-6. The results are interpreted in terms of both phenomenological theory and molecular mechanisms. The results for these polymers may be understood in terms of differing contributions by the processes of (a) spherulite or superstructure deformation, (b) delayed crystal reorientation within the deformed superstructure, and (c) relaxation of crystal orientation. For low density polyethylene, processes (b) and (c) are the principal contributors while for high-density polyethylene, (a) becomes important at the lower temperatures. For polypropylene, (a) dominates and (b) begins to contribute at the higher temperatures, while for nylon-6, (a) gives way to (c) without any appreciable region of important contribution of (b). (Author)

AD-624 432 Fld. 11/9, 20/11
CFSTI Prices: HC $1.00 MF $0.50
BUREAU OF SHIPS WASHINGTON D C
BASES FOR THE DESIGN OF DEFINITIVELY STRESSED CONSTRUCTION ELEMENTS MADE OF SYNTHETICS,
by Werner Knappe. Nov 65, 23p. Rept. no. trans-944
TT 65-64677
Unclassified report

(Grundlagen fur die Berechnung Definiert Beanspruchter Bauteile aus Kunststoff) Trans. of Verein Deutscher Ingenieure. Zeitschrift (West Germany) v107 n20 p853-61 1965.

Descriptors: (*Plastics, Structural properties), (*Structural parts, Plastics), Stresses, Creep strength, Plastic laminates, Glass textiles, Polyethylene plastics, Polyvinyl chloride, Polyester plastics, Epoxy plastics, Deformation, Elasticity, Reinforcing materials

AD-624 480 Fld. 11/9, 6/16, 7/3
MASSACHUSETTS EYE AND EAR INFIRMARY BOSTON OPHTHALMIC PLASTICS LAB
HYDROGELS FROM 2-HYDROXYETHYL METHACRYLATE AND PROPYLENE GLYCOL MONOACRYLATE,
by M. F. Refojo, and H. Yasuda. 16 Feb 65, 11p.
Contract Nonr-3662 (01) Proj. NR-105-163
Unclassified report

Presented at the Meeting, American Chemical Society, (148th) Chicago, September 1964.

Availability: Published in Journal of Applied Polymer Science, V9 P2425-35 1965. Copies to DDC users only.

Descriptors: (*Gels, Preparation), (*Acrylic resins, Gels), (*Cornea, Models (Simulations)), Ethanols, Propenes, Glycols, Crosslinking (Chemistry), Water, Optical properties, Optical materials, Thermal properties, Permeability

Hydrophilic three-dimensional polymer networks (hydrogels) were prepared from 2-hydroxyethyl methacrylate (HEMA) and propylene glycol monacrylate (PGMA). By wet crosslinking, hydrogels which maintain their original shape and volume relatively well, compared with the drycrosslinked polymer networks, were obtained. The maximum amount of water which can be maintained in transparent hydrogels depends on the hydrophilicity of the monomers, e.g., about 40% for HEMA gels, about 50% for PGMA gels, and 40-50% for HEMA-PGMA copolymer gels depending on the monomer composition. When the water content exceeds this maximum in transparent gels (homogeneous hydrogels), they become opaque and/or spongy (heterogeneous hydrogels). Effects of the amount of crosslinking agent and the initial dilution of the monomer solution upon the swelling behavior of hydrogels were investigated. The temperature dependence of the swelling of these hydrogels and the water permeation through them were also studied. (Author)

AD-624 482 Fld. 11/9, 6/16, 8/1
MASSACHUSETTS EYE AND EAR INFIRMARY BOSTON OPHTHALMIC PLASTICS LAB
GRAFT COPOLYMERIZATION OF VINYLPYRROLIDONE ONTO POLYDIMETHYLSILOXANE,
by H. Yasuda, and M. F. Refojo. 14 Feb 64, 6p.
Contract Nonr-3662 (01) Proj. NR-105-163
Unclassified report

Availability: Published in Journal of Polymer

Science; Part A, V2 P5093-8 1964. Copies to DDC users only.

Descriptors: (*Vinylpyrrolidone, Copolymerization), (*Siloxanes, Copolymerization), (*Implants, Plastics), Vinyl plastics, Silicone plastics, Radiation chemistry, Electron bombardment, Permeability, Molecular weight, Water, Dosage

Graft copolymers of polyvinylpyrrolidone (PVP) onto polydimethylsiloxane were prepared by the mutual irradiation technique utilizing high energy electrons (3 M.e.v.) generated by Van de Graaf. Water was shown to have an acceleration effect of polymerization of vinylpyrrolidone and a reduction in the penetration of the monomer solution in the polymer. The dependence of the molecular weight of polyvinylpyrrolidone on the dose, and the dependence of the penetration of the grafted layer in the trunk polymer on the dose and the water content in the monomer solutions were determined. The graft copolymers are hydrophilic and their hydrophilicity is proportional to the amount of polyvinylpyrrolidone grafted onto the silicone. The location of the graft copolymer is determined by staining and sectioning technique. Grafting varied from surface grafting to apparently homogeneous grafting depending on the water content in the monomer solution and on the total dose. (Author)

AD-624 427 **See Fld. 11/7**

AD-624 504 **See Fld. 6/12**

AD-624 574 **See Fld. 13/4**

AD-624 593 **See Fld. 8/1**

AD-624 621 **See Fld. 6/5**

AD-624 787 **See Fld. 18/8**

AD-624 788 **See Fld. 18/8**

11/10. RUBBERS

AD-624 544 Fld. 11/10, 7/3
CFSTI Prices: HC $2.00 MF $0.50
OLIN MATHIESON CHEMICAL CORP NEW HAVEN CONN CHEMICALS DIV
SIB POLYMER DEVELOPMENT.
Quarterly rept. no. 3, 1 Aug-31 Oct 65,
by H. A. Schroeder, and O. G. Schaffling. 19 Nov 65, 28p. Contract NObs-92143
Unclassified report

Descriptors: (*Boron compounds, Siloxanes), (*Siloxanes, Boron compounds), (*Polymers, Siloxanes), (*Elastomers, Heat-resistant materials), Antioxidants, Vulcanizates, Tensile properties, Aging (Materials), Additives, Elongation, Hardness

Further studies with the recently discovered 'offrac io' SiB-2 rubber confirmed that it is possible to nake a SiB elastomer with 1,000 to 1,200 pounds ensile strength, although this species leaves some hing to be desired in heat resistance. A particular- y interesting SiB representative was included in ur investigation since the last report. Chemically is a phenyl substituted SiB-4 polymer which can e obtained not only in the usual rubbery form but lso as a viscous stock. Vulcanizates from this lat- er material exhibit outstanding heat-aging resis- ance surpassing the performance of any rubber e have seen so far. In addition, it was found to e still flexible as -80F, thus indicating a wide nge of elasticity. The investigation of antioxi- ants such as ferric oxide, tungsten oxide and fer- cene was intensified. The two oxides, especially, part noteworthy resistance to deterioration of e polymers at elevated temperatures.

AD-624 735 Fld. 11/10, 7/3
CFSTI Prices: HC $1.00 MF $0.50
REACTION MOTORS DIV THIOKOL CHEMICAL CORP DENVILLE N J
CARBORANE-SILOXANE ELASTOMERS.
Quarterly progress rept., 19 Aug-18 Nov 65,
by Joseph Green. 18 Nov 65, 16p. Rept. no. rmd-5065-Q3
Contract DA-11-070-AMC-852 (W) Proj. DA-5065
Unclassified report

See also AD-620 546.

Descriptors: (*Organoboranes, Elastomers), (*Siloxane, Elastomers), Synthesis (Chemistry), Polymerization, Polymers, Heat-resistant plastics

Polymers of structure- (CH3)2Si (CH2)3CB10H10C (CH2)3 Si (CH3)2 (-OSi (CH3)2) sub O, 1 and 2 were found to be susceptible to thermal oxidation at about 240C. Materials of structure-Si (CH3)2B10H10C (CH2)3-5CB10H10CSi (CH3)2Oare expected to resist thermal oxidative attack due to the stabilization of silyl methyl groups by carborane. An investigation of the preparation of precursors having the structures HCB10H10C (CH2)3-5CB10H10CH was initiated and compounds with 3 and 4 methylene groups have been prepared. (Author)

AD-624 744 Fld. 11/10
CFSTI Prices: HC $1.00 MF $0.50
ARMY WEAPONS COMMAND ROCK ISLAND ILL RESEARCH AND ENGINEERING DIV
IMPROVEMENT IN COMPRESSION SET RESISTANCE OF ELASTOMERIC VULCANIZATES USING CADMIUM OXIDE.
Technical rept.,
by E. W. Bergstrom. Nov 65, 22p. Rept. no. ria-65-3024
Proj. 1C024491A329
Unclassified report

Descriptors: (*Vulcanizates, Cadmium compounds), (*Cadmium compounds, Oxides), (*Additives, Cadmium compounds), Elastomers, Compressive properties, Aging (Materials), Sulfur, Physical properties, Synthetic rubber

Cadmium oxide (CdO) was evaluated in numerous elastomeric vulcanizates as an additive for improving compression set resistance. It was found to be effective in certain SBR, NBR and carboxylic rubber vulcanizates, significantly lowering compression set and allowing shorter cure times to be used. The compression set of a sulfur-Altax cured NBR vulcanizate, for example, was reduced by as much as 50% (% change from value found for same compound without CdO) and cure times as short as 5 or 10 minutes at 292, 307 and 320F could be used. Sulfur-accelerator cured SBR and NBR vulcanizates containing CdO were found to be somewhat less scorch resistant than the same vulcanizates without CdO but were not as scorchy as certain nonelemental sulfur cured vulcanizates. (Author)

AD-624 504 **See Fld. 6/12**

12/1. MATHEMATICS AND STATISTICS

AD-624 265 Fld. 12/1, 9/4
CFSTI Prices: HC $1.00 MF $0.50
POLYTECHNIC INST OF BROOKLYN N Y MICROWAVE RESEARCH INST
A SIMPLE APPROACH TO THE ZERO-CROSSING PROBLEM.
Memo rept.,
by A. Papoulis. 1 Oct 63, 8p. Rept. no. pibmri-1194-63 ,M-66
Contract AF-AFOSR-453-63 AFOSR 65-1723
Unclassified report

Descriptors: (*Statistical processes, Probability), (*Probability, Statistical processes), (*Information theory, Probability), Band-pass filters, Statistical functions

Given a normal stationary process x (t) with zero mean, the probability p (delta t) that x (t) = o is solved for some t in the interval (t sub o, t sub o + delta t). It is found that cos (pi p (delta t)) = R (delta t)/R (0), where R (tau) is the autocorrelation of x (t).

AD-624 266 Fld. 12/1, 9/4
CFSTI Prices: HC $1.00 MF $0.50
POLYTECHNIC INST OF BROOKLYN N Y MICROWAVE RESEARCH INST
EXPANSION OF A NON-PERIODIC PROCESS X (T) INTO A FOURIER SERIES WITH UNCORRELATED COEFFICIENTS,
by A. Papoulis. 15 Jan 64, 9p. Rept. no. pibmri-1203-64 ,Memo-68
Contract AF-AFOSR-453-63 AFOSR 65-1724
Unclassified report

Descriptors: (*Statistical processes, Series), (*Series, Statistical processes), (*Fourier analysis, Series), Statistical functions, Integral transforms, Probability, Information theory

AD-624 268 Fld. 12/1
CFSTI Prices: HC $3.00 MF $0.75
ILLINOIS UNIV URBANA ELECTRICAL ENGINEERING RESEARCH LAB
ON CLASSIFICATION AND SUPERPOSITION PRINCIPLES FOR NONLINEAR OPERATORS.
Technical rept.,
by Alfred Inselberg. May 65, 80p. Rept. no. tr-4

Contract AF-AFOSR-7-64 Proj. AF-9769 Task 976904
AFOSR 65-1712
Unclassified report

Descriptors: (*Operators (Mathematics), Functional analysis), (*Nonlinear differential equations, Operators (Mathematics)), Complex variables, Complex numbers, Transformations (Mathematics), Groups (Mathematics)

Superpositions (ways of expressing a solution of an equation as a function of other solutions of the equation) for nonlinear operators are discussed. For operators having certain kinds of superpositions, a unique representation involving their superposition and additively linear operators is given. Equivalence classes of operators are obtained, each class being composed of operators having a given superposition. Generalized translations of operators are defined in terms of the superpositions. The classification of operators is further extended, and a number of well-known nonlinear differential operators are shown to belong to certain of these extended classes. (Author)

AD-624 299 Fld. 12/1
CFSTI Prices: HC $4.00 MF $0.75
CALIFORNIA UNIV BERKELEY DEPT OF MATHEMATICS
COMMENTS ON DIFFERENTIABILITY OF SOLUTIONS OF BOUNDARY VALUE PROBLEMS.
Technical rept.,
by Robert D. Moyer. Sep 65, 122p. Contract Nonr-222 (62) Proj. NR-041-214
Unclassified report

Descriptors: (*Boundary value problems, Differential equations), (*Differential equations, Boundary value problems), Partial differential equations, Theorems, Distribution theory

In this report, the problem of smoothness of solutions of boundary value problems is considered. It is shown that the smoothness problem is reducible to a study of certain spaces of gereralized solutions of the homogeneous adjoint problem. These spaces are then studied in the case of symmetric positive systems. The results are then applied to boundary value problems for singular ordinary differential equations. In this case, explicit conditions

are given which can be used to determine the degree of smoothness of solutions. (Author)

AD-624 307 Fld. 12/1, 9/4
CFSTI Prices: HC $1.00 MF $0.50
POLYTECHNIC INST OF BROOKLYN N Y MICROWAVE RESEARCH INST
ERGODICITY OF THE DISTRIBUTION FUNCTION OF A STATIONERY PROCESS,
by A. Papoulis. 20 Jan 64, 6p. Rept. no. pibmri-1205-64 ,Memo-69
Contract AF-AFOSR-453-63 AFOSR 65-1725
Unclassified report

Descriptors: (*Measure theory, Distribution functions), (*Distribution functions, Statistical processes), Statistical functions, Integrals

AD-624 371 Fld. 12/1
CHICAGO UNIV ILL
CATEGORICAL ALGEBRA,
by Saunders MacLane. 6 Oct 64, 69p. Contract AF-AFOSR-520-64 AFOSR 65-1042
Unclassified report

Availability: Published in Bulletin of the American Mathematical Society V71 N1 P40-106 Jan 1965. Copies to DDC users only.

Descriptors: (*Algebras, Set theory), Algebraic topology, Mapping (Transformations), Groups (Mathematics)

This article, a revision of the notes used in the Colloquium Lectures of the American Mathematical Society for 1963, summarizes a number of the developments which use categories, with particular attention to the ubiquity of adjoint functors, the utility of abelian categories, a unified categorical treatment of types of algebras, relative homological algebra via adjoint functors, differential graded objects, and universal algebra via suitable 'very small' categories.

AD-624 394 Fld. 12/1
STANFORD UNIV CALIF DEPT OF MATHEMATICS
RIEMANN SURFACES WITH THE ABSOLUTE ABMAXIMUM PRINCIPLE,
by H. L. Royden. 3 Jun 64, 8p. Contract DA-31-124-ARO (D)-170 Proj. ARO (D)-1323-M AROD 1323:32
Unclassified report

Availability: Published in Proceedings of the Conference on Complex Analysis, Minneapolis P173-5 1964. Copies to DDC users only.

Descriptors: (*Complex variables, Theorems), Functional analysis, Potential theory, Topology

AD-624 426 Fld. 12/1
CFSTI Prices: HC $2.00 MF $0.50
LINCOLN LAB MASS INST OF TECH LEXINGTON
GRADIENT MATRICES AND MATRIX CALCULATIONS.
Technical note,
by Michael Athans, and Fred C. Schweppe. 17 Nov 65, 40p. Rept. no. tn-1965-53
Contract AF19 (628)-5167 Proj. AF-627A ESD TDR-65-55
Unclassified report

Descriptors: (*Matrix algebra, Differential equations), Vector analysis, Determinants, Functions, Combinatorial analysis

The purpose of this report is to define a useful shorthand notation for dealing with matrix functions and to use these results in order to compute the gradient matrices of several scalar functions of matrices. (Author)

AD-624 458 Fld. 12/1
CFSTI Prices: HC $1.00 MF $0.50
STANFORD UNIV CALIF DEPT OF STATISTICS
FIRST PASSAGE TIMES AND OUTER ANALYSIS OF CONTINUOUS PARAMETER MARKOV CHAINS.
Technical rept.,
by I. MacNeill, and H. Rubin. 15 Nov 65, 16p.
Rept. no. tr-111
Contract Nonr-225 (52) Proj. NR-342-022
Unclassified report

Descriptors: (*Probability, Statistical analysis), Integral transforms, Differential equations, Matrix algebra, Statistical distributions, Stochastic processes

Two methods are discussed of computing first passage times for a finite state, continuous time parameter Markov chain. One of the methods involves a system of differential equations and the other is the Laplace transform technique. Other analyses involve the transition probability matrix and the steady state distribution. Several techniques for making computations are given and an example is worked. A problem is solved which was presented by one of the agencies served under the Joint Services Advisory Group program. (Author)

AD-624 524 Fld. 12/1
CFSTI Prices: HC $1.00 MF $0.50
NAVAL AIR DEVELOPMENT CENTER JOHNSVILLE PA AEROSPACE MEDICAL RESEARCH DEPT
A SHORT-CUT SOLUTION FOR THE KOLMOGOROVSMIRNOV TEST.
Phase rept.,
by Robert M. Herrick. 8 Nov 65, 10p. Rept. no. nadc-MR-6504
Task R360-FR102/2021/R01-101-01
Unclassified report

Descriptors: (*Statistical tests, Graphics), (*Graphics, Statistical tests), Sampling, Statistical distributions

A simple graphical solution for the Kolmogorov-Smirnov test is presented. The solution is applicable to (a) comparison of distributions based on large numbers of cases, (b) comparisons in which the number of cases in the two samples are equal or unequal, (c) comparison of a sample distribution with a theoretical distribution. (Author)

AD-624 745 Fld. 12/1
CFSTI Prices: HC $1.00 MF $0.50
BOEING SCIENTIFIC RESEARCH LABS SEATTLE WASH MATHEMATICS RESEARCH LAB
DESCENT OF THE BOUNDARY OF A SPHERE,
by A. A. Goldstein. Oct 65, 8p. Rept. no. d1-82-0482 ,Mathematical note-433
Unclassified report

Also available from the author.

Descriptors: (*Saddle point method, Spheres), (*Spheres, Functions), Boundary value problems, Control, Mathematical programming

A method is proposed for the problem of minimizing or finding stationary values of a differentiable function f which is constrained to the boundary of the unit sphere in. In the special case that del (f) does not vanish on the unit sphere itself, this is a problem in convex programming, because then the extremal must occur on the boundary of the sphere. In this case, the method of convex programming in a Hilbert space could be used. The general situation, which is not convex programming, is considered. The method of attack follows A. A. Goldstein, 'On Steepest Descent', Feb. 1965, Journal SIAM Control, Vol. 3, No. 1. (Author)

AD-624 777 Fld. 12/1
CFSTI Prices: HC $1.00 MF $0.50
RAND CORP SANTA MONICA CALIF
RADIATIVE TRANSPORT AND THE CALCULUS OF VARIATIONS, I: THE INVARIANT VARIATIONAL PRINCIPLE AND NORMAL INITIAL AND BOUNDARY DATA,
by Dominic G. B. Edelen. Dec 65, 25p. Rept. no. p-3275
Unclassified report

Descriptors: (*Transport properties, Wave transmission), (*Calculus of variations, Transport properties), Invariance, Boundary value problems, Transformations (Mathematics)

The problem of three-dimensional radiative transport is imbedded in a variational principle (preferably invariant under analytic coordinate transformations). The requisite invariant variational principle is obtained. The symmetry properties of such problems are examined for normal scattering kernels.

AD-624 807 Fld. 12/1
CFSTI Prices: HC $1.00 MF $0.50
RAND CORP SANTA MONICA CALIF
A LIMIT THEOREM FOR SUBADDITIVE COLLECTIONS OF SEQUENCES,
by Jon Folkman. Nov 65, 14p. Rept. no. rm-4802-PR
Contract AF49 (638)-700
Unclassified report

Descriptors: (*Sequences, Dynamic programming), Asymptotic series, Functional analysis, Transformations (Mathematics), Inequalities, Set theory

Information is presented about the asymptotic behavior of collections of sequences related by a certain inequality. These results generalize a well-known theorem on the asymptotic behavior of a subadditive sequence. The results have applications to dynamic programming, where sequences satisfying our inequality arise in a natural way. (Author)

AD-624 808 Fld. 12/1
CFSTI Prices: HC $2.00 MF $0.50
RAND CORP SANTA MONICA CALIF
A PERTURBATION THEORY FOR NONLINEAR PARTIAL DIFFERENTIAL EQUATIONS,
by Stephen H. Davis. Nov 65, 29p. Rept. no. rm-4795-PR
Contract AF49 (638)-700
Unclassified report

Descriptors: (*Perturbation theory, Nonlinear differential equations), (*Nonlinear differential equations, Partial differential equations), Boundary value problems, Functional analysis, Harmonic analysis, Hydrodynamics

A perturbation theory is discussed in nonlinear partial differential equations which enables one to obtain uniformly valid solutions for a class of timedependent equations. (Author)

AD-624 817 Fld. 12/1
CFSTI Prices: HC $1.00 MF $0.50
RAND CORP SANTA MONICA CALIF
A PROBLEM EMANATING FROM A STUDY OF FEEDBACK LOOPS IN STOCHASTIC NETWORKS,
by Paul Brock, and Stephen Drezner. Dec 65, 9p. Rept. no. p-3276
Unclassified report

Descriptors: (*Networks, Topology), (*Scheduling, Networks), Feedback, Stochastic processes, Probability, Series

A closed expression is developed for an equation giving the number of distinguishable ways of going around loop L4 k times provided that an external return is made to the starting node r times.

AD-624 837 Fld. 12/1
CFSTI Prices: HC $2.00 MF $0.50
COMPUTER SCIENCE DIV STANFORD UNIV CALIF
ON IMPROVING AN APPROXIMATE SOLUTION OF A FUNCTIONAL EQUATION BY DEFERRED CORRECTIONS.
Technical rept.,
by Victor Pereyra. 31 Aug 65, 38p. Rept. no. cs29
Contract Nonr-225 (37) Proj. NR-044-211
Unclassified report

See also AD-612 478.

Descriptors: (*Functions, Approximation (Mathematics)), (*Approximation (Mathematics), Corrections), (*Iterative methods, Approximation (Mathematics)), Boundary value problems, Mapping (Transformations), Operators (Mathematics), Nonlinear differential equations, Algorithms, Equations

The improvement of discretization algorithms for the approximate solution of nonlinear functional equations is considered. Extensions to the method of difference corrections by Fox are discussed and some general results are proved. Applications to nonlinear boundary problems and numerical examples are given in some detail. (Author)

AD-624 842 Fld. 12/1, 9/3, 20/1
CFSTI Prices: HC $4.00 MF $0.75
AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OHIO SCHOOL OF ENGINEERING
ANALYSIS OF THE RESPONSE OF A NONLINEAR DIFFERENTIAL EQUATION TO WHITE RANDOM EXCITATION.
Master's thesis,
by Marion A. Minnelli. Aug 65, 120p. Rept. no. GE/EE/65-14
Unclassified report

Descriptors: (*Nonlinear differential equations, Response), Excitation, Noise, Probability, Nonlinear systems, Control, Frequency, Statistical analysis, Power, Analog computers

The response of the nonlinear equation d (dx/dt)dta dx/dt (1-x-sq-d (x-sq)/dt) + x = n (t) to white noise excitation is determined experimentally for three values of a and three noise levels associated with each value of a. The response data is presented in terms of power spectral density, cumulative probability distribution, and phase plane trajectories. The power spectral density analysis of the data was made with a heterodyne wave analyzer and the results are presented in graphical and tabular form. The mean power spectral density is plotted and the standard deviation of the ensemble is calculated at each frequency of measurement as an indication of the statistical uncertainty. A statistical analyzer was used to plot the normalized cumulative probability distributions of the data samples. Phase plane trajectories are likewise pictured for each parameter change.

AD-624 851 Fld. 12/1, 20/4, 20/11
CFSTI Prices: HC $1.00 MF $0.50
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
NEWS OF SCHOOLS OF HIGHER EDUCATION. MATHEMATICS. (SELECTED ARTICLES),
by V. N. Ionov, G. A. Vvedenskii, and A. G. Terentev. 10 Nov 65, 24p. Rept. no. ftd-TT-65-931 TT 65-64807
Unclassified report

Unedited rough draft trans. of Izvestiya Vysshikh Uchebnykh Zavedenii. Matematika (USSR) n6 p59-66, 159-67 1964.

Descriptors: (*Mechanical properties, Mathematical analysis), (*Cavitation, Fluid flow), Plasticity, Elasticity, Stresses, USSR, Flat plate models, Mathematics

Contents: On the possible form of a general solution to equilibrium equations in curvilinear coordinates; Cavitational flow past a flat plate.

AD-624 254 See Fld. 5/3

AD-624 276 See Fld. 7/4

AD-624 378 See Fld. 7/4

AD-624 397 See Fld. 20/8

AD-624 468 See Fld. 9/2

AD-624 474 See Fld. 8/4

AD-624 489 See Fld. 9/2

AD-624 655 See Fld. 22/3

AD-624 664 See Fld. 5/1

AD-624 689 See Fld. 9/3

AD-624 693 See Fld. 9/4

AD-624 720 See Fld. 20/3

AD-624 786 See Fld. 5/9

AD-624 816 See Fld. 20/10

AD-624 829 See Fld. 9/2

12/2. OPERATIONS RESEARCH

AD-624 310 Fld. 12/2
CFSTI Prices: HC $2.00 MF $0.50
RAND CORP SANTA MONICA CALIF
NOTES ON N-PERSON GAMES VII. CORES OF CONVEX GAMES,
by Lloyd Shapley. Oct 65, 31p. Rept. no. rm-4571-PR
Contract AF49 (638)-700
Unclassified report

Descriptors: (*Convex sets, Game theory), (*Game theory, Convex sets), Measure theory

The core of an n-person game is the set of outcomes that cannot be blocked by any coalition of players. It is shown in this memorandum that the core of a convex game has an especially regular structure, and that it is closely related to two other solution concepts. Specifically, (1) the value solution is the center of gravity of the extreme points of the core; (2) the von NeumannMorgenstern stable set solution is unique and coincides with the core. (Author)

AD-624 424 Fld. 12/2
CFSTI Prices: HC $1.00 MF $0.50
RAND CORP SANTA MONICA CALIF
MARKOV RENEWAL PROGRAMMING BY LINEAR FRACTIONAL PROGRAMMING,
by Bennett Fox. Nov 65, 24p. Rept. no. p-3257
Unclassified report

Descriptors: (*Linear programming, Dynamic programming), (*Statistical processes, Linear programming), Optimization, Probability, Costs

Markov renewal programming is treated by linear fractional programming. Particular attention is given to the resolution of tied policies that minimize expected cost per unit time. (Author)

AD-624 499 Fld. 12/2
CFSTI Prices: HC $2.00 MF $0.50
VIRGINIA UNIV CHARLOTTESVILLE DEPT OF ECONOMICS
AN ALTERNATIVE INTERPRETATION OF THE PRIMAL-DUAL METHOD AND SOME RELATED PARAMETRIC METHODS.
Research memo.,
by C. van de Panne, and A. Whinston. Aug 65, 27p. Rept. no. ONR-RM-1
Contract Nonr-4811 (00) Proj. NR-047-056
Unclassified report

Descriptors: (*Linear programming, Algorithms), (*Algorithms, Linear programming), Optimization, Quadratic programming

The primal-dual method is interpreted as a parametric linear programming method. Some variants and related methods, such as Dantzig's self-dual parametric method and the linear programming variant of Houthakker's capacity method for quadratic programming are considered and compared. (Author)

AD-624 500 Fld. 12/2
CFSTI Prices: HC $1.00 MF $0.50
VIRGINIA UNIV CHARLOTTESVILLE DEPT OF ECONOMICS
ON TWO COMMODITY NETWORK FLOWS.
Research memo.,
by B. Rothschild, and A. Whinston. Oct 65, 25p. Rept. no. ONR-RM-2
Contract Nonr-4811 (00) Proj. NR-047-056
Unclassified report

Descriptors: (*Linear programming, Operations research), Graphics, Algorithms, Scheduling, Theorems, Economics

The paper considers the problem of two-commodity network flows and generalizes a result of Hu on integral flows in networks with integral capacities. The main result of the paper is a Max-flow Min-cut theorem for two commodity networks. The method of proof involves a particular type of separation process. This leads to an algorithm for finding the maximal flows. Several counterexamples to certain possible generalizations are given at the end of the paper. (Author)

AD-624 501 Fld. 12/2
CFSTI Prices: HC $1.00 MF $0.50
VIRGINIA UNIV CHARLOTTESVILLE DEPT OF ECONOMICS
FEASIBILITY OF TWO COMMODITY NETWORK FLOWS,
by B. Rothschild, and A. Whinston. Oct 65, 14p. Rept. no. ONR-RM-3
Contract Nonr-4811 (00) Proj. NR-047-056
Unclassified report

Descriptors: (*Linear programming, Operations research), Graphics, Scheduling, Algorithms, Feasibility studies, Theorems, Economics

The paper considers the problem of feasibility of integer flows in a two commodity network with integral capacities. The main result of the paper is conditions under which, for two nonnegative integers a and b, there exists a two commodity flow, where the flow of the first commodity is of size a and the second flow of size b. If such numbers are realizable as flow values, then an algorithm is indicated for finding the actual paths in the network. (Author)

AD-624 553 Fld. 12/2
CFSTI Prices: HC $4.00 MF $0.75
MASSACHUSETTS INST OF TECH CAMBRIDGE OPERATIONS RESEARCH CENTER
ON SOME ASPECTS OF INTEGER LINEAR PROGRAMMING,
by Romulo H. Gonzalez-Zubieta. Jun 65, 111p. Rept. no. tr-16
Contract DA-31-124-ARO (D)-209 Proj. DA-2001501B704 ,DSR-5217 AROD 968.4
Unclassified report

Report on Fundamental Investigations in Methods of Operations Research.

Descriptors: (*Linear programming, Numbers), (*Algorithms, Linear programming), Optimization, Operations research, Geometry, Programming (Computers)

A primal feasible (all-integer) integer linear programming algorithm has been developed and programmed, together with a related procedure for obtaining a first feasible solution. Once a feasible solution is found, the algorithm maintains feasibility at each stage, in contrast to other algorithms that have been programmed and are currently available. These other algorithms do not achieve feasibility until the optimal solution is reached. The primal feasible algorithm is based on a particular way of applying the cutting planes previously developed by R. E. GOMORY, and on a specific interpretation of their role. The finiteness of convergence has been established for two-dimensional problems but not for the general case; however, there appears to be at least computational convergence in a considerable fraction of the cases. In addition, a Generalized Euclidean Algorithm for finding the greatest common divisor for more than two numbers is defined. The solution of systems of linear diophantine equations is presented in terms of integer linear programming. Some geometric considerations that help to illuminate the workings of the algorithm, are examined. (Author)

AD-624 577 Fld. 12/2
CFSTI Prices: HC $2.00 MF $0.50
STANFORD RESEARCH INST MENLO PARK CALIF
SUBDIRECT DECOMPOSITIONS OF TRANSITION GRAPHS,
by M. Yoeli, and C. M. Ablow. 1 Sep 65, 31p. Rept. no. scientific-3
Contract AF19 (628)-5092 Proj. AF-4641 Task 46101
AFCRL 65-75
Unclassified report

See also AD-617 786.

Descriptors: (*Graphics, Algebraic topology), (*Quadratic programming, Graphics), Algorithms, Matrix algebra, Optimization

In a preceding report canonical expressions for transition graphs and their direct products were derived. In this report, these expressions are applied to obtain an algorithm for the representation of a complete, connected transition graph or flower as a subgraph of the direct product of smaller flowers. The decomposition algorithm is related to a quadratic all-integer programming problem, which is discussed in detail. (Author)

AD-624 578 Fld. 12/2, 9/2
CFSTI Prices: HC $1.00 MF $0.50
STANFORD RESEARCH INST MENLO PARK CALIF
SUBDIRECTLY IRREDUCIBLE UNARY ALGEBRAS,
by M. Yoeli. 15 Sep 65, 16p. Rept. no. scientific-4

Contract AF19 (628)-5092 Proj. AF-4641 Task 464101
AFCRL 65-75
Unclassified report

Descriptors: (*Algebras, Graphics), (*Automata, Algebras), Algebraic topology, Mathematical logic, Transformations (Mathematics)

Subdirect representations of finite unary algebras are studied. Elementary considerations of the corresponding directed graphs yield necessary and sufficient conditions for connected finite unary algebras to be irreducible, i.e., to have only trivial subdirect representations. (Author)

AD-624 672 Fld. 12/2, 5/3
HEBREW UNIV JERUSALEM (ISRAEL)
UTILITY FUNCTIONS OF MONEY FOR CLEAR GAMES,
by Bezalel Peleg. 1965, 8p.
Unclassified report

Availability: Published in Naval Research Logistics Quarterly V12 N1 P57-63 Mar 1965. Copies to DDC users only.

Descriptors: (*Game theory, Money), (*Functions, Game theory), (*Money, Game theory)

This paper discusses the question of clearness of K-games for catalogues as defined by Jentzsch. It is proved that when the coalition K has at least two members, a necessary and sufficient condition that all money games played by K will be clear is that the utility functions for money of the players of K are linear in money. In the proof the author assume that the utility functions are concave. (Author)

AD-624 673 Fld. 12/2, 13/8
FLORIDA STATE UNIV TALLAHASSEE
SURVEILLANCE PROBLEMS: WIENER PROCESSES,
by Gordon R. Antelman, and I. Richard Savage. 1965, 22p. Contract Nonr-988 (13) ,Nonr-710 (31) Proj. NR-042-003
Unclassified report

Prepared in cooperation with Minnesota Univ., Minneapolis. Contract Nonr-710 (31), Proj. NR-042-003.

Availability: Published in Naval Research Logistics Quarterly V12 N1 P35-55 Mar 1965. Copies to DDC users only.

Descriptors: (*Production control, Optimization), (*Statistical processes, Production control), Management engineering, Decision theory

This paper extends the results presented by I. R. Savage. That paper studied economically optimal policies for inspecting and repairing production processes which behave as Poisson processes. Similar results are presented here for production processes which behave as Wiener processes. With continuous surveillance, methods are presented which permit the computation of exactly optimal strategies and the optimal income per unit of time. With costly surveillance, a functional equation is presented. The solution of this equation would yield the optimal strategy. Explicit solutions do not seem feasible but many qualitative properties of the solutions are found. The most interesting of these says, roughly (see Proposition 12 for exact statement), that the time between inspections decreases as the observed quality decreases. (Author)

AD-624 674 Fld. 12/2, 5/3
GEORGE WASHINGTON UNIV WASHINGTON D C LOGISTICS RESEARCH PROJECT
FINDING THE INVERSE AND CONNECTIONS OF A TYPE OF LARGE SPARSE MATRIX,
by Martin Hershkowitz, and Stedman B. Noble. 1965, 15p. Contract Nonr-761 (06)
Unclassified report
Availability: Published in Naval Research Logistics Quarterly V12 N1P119-32 Mar 1965. Copies to DDC users only.

Descriptors: (*Matrix algebra, Algorithms), Programming (Computers), Economics

Much interest is being shown in methods for determining structure of matrices in order to simplify computation. This paper takes a slightly different approach, giving an algorithm that determines the structure of a matrix while inverting it. The algorithm applies to matrices with dominant diagonal or similar matrices that can be inverted using the C. Neumann series. This series is decomposed into terms which are products of connected coefficients: the procedure lends itself to an efficient method of truncation that obtains an approximation to the inverse matrix. While this algorithm might not be efficient for some matrices, it is quite efficient for the 430-order Minkowski-Leontief matrix upon which it was tested. Furthermore, the computation enumerates the connections in the matrix; hence the model can be 'tested' by comparing the connections of the model with those known to exist in the underlying phenomena. (Author)

AD-624 675 Fld. 12/2, 13/6, 13/12
NEW MEXICO UNIV ALBUQUERQUE
A STATISTICAL STUDY OF THE DERAILMENT HAZARD FOR U. S. CLASS I RAILWAYS,
by L. H. Koopmans. 1965, 25p.
Unclassified report

Availability: Published in Naval Research Logistics Quarterly V12 N1 P95-118 Mar 1965. Copies to DDC users only.

Descriptors: (*Statistical analysis, Hazards), (*Railroads, Accidents), Probability, Mathematical models

A simple probabilistic model is proposed for the collision and derailment experience for freight trains of U.S. Class I railways. By means of this model, asymptotic confidence intervals are constructed for the probability per mile of a derailment accident as a function of train speed and train length which utilize data available from records for U.S. Class I railways kept by the Interstate Commerce Commission and the Association of American Railroads. Allowance is made in the model for the grouping of data by train length and speed. The theory is applied to a particular summary of accident data for all U.S. Class I railways for the years 1952 through 1955. On the basis of this data, confidence intervals for the derailment probability are computed for speeds in excess of 10 mph and train lengths of from 11 to 130 cars in groups of 5 cars. In addition, a statistical test of one of the more crucial model hypotheses is performed. An appendix containing the relevant derivations is included. In particular, a new version of a theorem of Slutsky due to LeCam is stated which greatly facilitates the derivations of the asymptotic distributions for the estimates of the derailment probabilities and the statistic employed in the above mentioned hypothesis test. (Author)

AD-624 676 Fld. 12/2
RAND CORP SANTA MONICA CALIF
A COMPLETE CONSTRUCTIVE ALGORITHM FOR THE GENERAL MIXED LINEAR PROGRAMMING PROBLEM,
by Glenn W. Graves. 1965, 35p.
Unclassified report

Availability: Published in Naval Research Logistics Quarterly V12 N1 P1-33 Mar 1965. Copies to DDC users only.

Descriptors: (*Algorithms, Linear programming), (*Linear programming, Algorithms)

An algorithm that seems to have several advantages for application to the general mixed linear programming problem is described. Although it does not make any non-degeneracy assumption or stipulate conditions for consistency of constraints or finiteness of extremal value, it has the following distinct advantages: (1) it does away with all augmentation for any reason, in particular 'artificial variables' for 'initial feasible solutions' and the doubling of rows and columns for equations and variables of arbitrary sign; (2) it does not resort to any perturbation technique or arbitrary cycling of 'basis' to cope with the 'degeneracy problem,' but instead shows how to capitalize on it by concentrating on a greatly restricted subset of rows and columns; (3) it isolates and identifies inconsistent constraints in a simple, natural way; and (4) it features a small segregated inverse of a 'basic kernel,' opening the way to easy generation of elements techniques with large sparse systems. (Author)

AD-624 523 See Fld. 22/4

AD-624 597 See Fld. 5/10

AD-624 618 See Fld. 16/1

AD-624 650 See Fld. 5/4

AD-624 677 See Fld. 15/1

AD-624 701 See Fld. 15/3

AD-624 702 See Fld. 15/3

AD-624 703 See Fld. 15/3

AD-624 704 See Fld. 15/3

AD-624 756 See Fld. 15/5

13/2. CIVIL ENGINEERING

AD-624 671 Fld. 13/2, 6/11, 22/2
CFSTI Prices: HC $4.00 MF $0.75
WASHINGTON UNIV ST LOUIS MO
WATER RECOVERY FROM HUMAN LIQUID WASTES BY DISTILLATION AND CHEMICAL OXIDATION.
Master's thesis,
by Michael James Ryan. Jan 66, 116p. Contract AF33 (608)-1292

Unclassified report

Descriptors: (*Life support, Water supplies), (*Urine, Distillation), (*Water supplies, Urine), Vacuum apparatus, Oxidation, Ozone, Closed ecological systems, Spacecraft

The recovery of potable water from human urine by atmospheric and vacuum distillation and by chemical oxidation was investigated utilizing the parameters of organic carbon, BOD, and COD. Linear relationships existed between organic carbon, BOD, and COD for the human urine samples studied. These relationships were as follows: organic carbon to BOD ratio equals 1.34, BOD to COD ratio equals 0.52, and organic carbon to COD ratio equals 0.64. The vacuum distillation of urine yielded a water suitable for human consumption. The chemical oxidation of human urine by ozonation was not found to be a practical means of treatment and water recovery due to the excessive quantities of ozone required. (Author)

AD-624 316 See Fld. 7/3

AD-624 741 See Fld. 6/5

13/3. CONSTRUCTION EQUIPMENT, MATERIALS AND SUPPLIES

AD-624 770 Fld. 13/3
CFSTI Prices: HC $3.00 MF $0.50
NAVAL CIVIL ENGINEERING LAB PORT HUENEME CALIF
DYNAMIC COMPRESSION TESTS ON THIN-SECTION REINFORCED CONCRETE.
Technical rept. Apr 64-Apr 65,
by David S. Fuss. Dec 65, 53p. Rept. no. tr-R-406
Proj. Y-F011-05-04-002

Unclassified report

Descriptors: (*Reinforced concrete, Compressive properties), Loading (Mechanics), Failure (Mechanics), Structural shells, Dynamics, Tests, Photograhic analysis

In support of the task objective of formulating design criteria for thin-shell concrete structures to withstand dynamic loading, experiments were performed to obtain information about the behavior of thin-section reinforcedconcrete members subjected to dynamic compression. Information was obtained on the dynamic material strength and on the characteristics of the failure process. The test members were planar concrete panels reinforced with a single layer of square-meshed welded-wire fabric. Several combinations of panel thickness, reinforcingwire diameter, and mesh size were investigated, as well as two concrete strengths (4,000 and 7,000 psi) and a single rate of compressive-stress application (100,000 psi per second). The results of the experiments show that the dynamic material strength of thin, compressively loaded members can be estimated as the sum of the dynamic concrete-failure load and the dynamic steelyield load as long as estimates of dynamic concretefailure load are based upon concrete cylinder strength and estimates of dynamic steel-yield stress do not exceed the maximum stesss prescribed for static design by the ACI Code (ACI 318-63). During the failure process, high-strength concrete was found to expel more particles, traveling at higher velocities, than normal-strength concrete, and some types of reinforcing mesh were found to initiate expulsion of large pieces of concrete. These two failure characteristics, among others, are illustrated in the report by the use of extracts from high-speed photography of the tests. (Author)

AD-624 798 Fld. 13/3
CFSTI Prices: HC $1.00 MF $0.50
COLD REGIONS RESEARCH AND ENGINEERING LAB HANOVER N H
PRELIMINARY INVESTIGATIONS OF PERMACRETE.
Technical rept.,
by G. K. Swinzow. Feb 65, 25p. Rept. no. tr-127
Proj. DA 1V014501B52A02

Unclassified report

Descriptors: (*Concrete, Arctic regions), Soils, Ice, Permafrost, Structural properties, Graphics, Costs, Freezing, Tests, Flexural strength, Creep strength

Ultimate flexural strength and certain creep properties of single-size soil-material aggregates cemented by ice are investigated. The relation of ultimate strength to particle size and temperature is given in the form of graphs. Rules for mixing various sizes are established, and their validity tested under field conditions. Experimental construction in permacrete (artificial concreteaggregate mixtures cemented by ice) disclosed that it should be applied and handled like concrete, providing the temperature is below the freezing point. Permacrete, although dissimilar to concrete in many important properties, may be used successfully as a building material in place of concrete. Its low cost and the availability of ingredients can make permacrete an important building material in permafrost regions. (Author)

13/4. CONTAINERS AND PACKAGING

AD-624 574 Fld. 13/4, 11/9
CFSTI Prices: HC $1.00 MF $0.50
ARMY WEAPONS COMMAND ROCK ISLAND ILL RESEARCH AND ENGINEERING DIV
COMPOSITE PLASTIC FILMS FOR FLEXIBLE TRANSPARENT PACKAGING.
Final rept.,
by Lynden W. Lynch. Aug 65, 18p. Rept. no. ria-65-1888
Proj. DA-1C024401A110

Unclassified report

Descriptors: (*Packing materials, Plastics), (*Laminated plastics, Films), Halocarbon plastics, Polyester plastics, Polyethylene plastics, Polyamide plastics, Thermoplastics, Costs, Effectiveness, Physical properties

Five composite films were developed conforming to the MIL-F-22191A, Type I requirements at considerably reduced prices. Two are considered to be of a lesser quality with no particular advantages. One, composed of a fluorocarbon and a polyethylene-polyester blend has relatively low physical properties but is rather thin and is exceptionally transparent. Its estimated selling price is $1.00 per square yard. The remaining two films, both composed of fluorocarbon, oriented polypropylene and a polyolefin terpolymer have excellent physical properties. One of these, having a one-mil thickness of fluorocarbon has an MVTR considerably lower than the specification requirement, but it is more expensive ($1.30 per sq yd). The other, having a 1/2 mil fluorocarbon ply has a normal MVTR but is also the most inexpensive ($0.90 per sq yd) of those meeting the specification. (Author)

AD-624 571 See Fld. 6/8

13/5. COUPLINGS, FASTENERS, AND JOINTS

AD-624 539 See Fld. 11/6

13/6. GROUND TRANSPORTATION EQUIPMENT

AD-624 675 See Fld. 12/2

AD-624 760 See Fld. 11/4

13/7. HYDRAULIC AND PNEUMATIC EQUIPMENT

AD-624 773 Fld. 13/7
CFSTI Prices: HC $4.00 MF $1.00
CORNING GLASS WORKS BRADFORD PA ELECTRONICS DIV
APPLICATION OF OPTICAL FABRICATION TECHNIQUES TO THE FABRICATION AND DEVELOPMENT OF FLUID AMPLIFIERS AND FLUID CIRCUITS.
Rept. for 1 Apr 62-31 May 65,
by R. W. Van Tilburg, R. H. Bellman, and W. L. Cochran. 29 Oct 65, 138p. Contract DA-49-186-ORD-1076

Unclassified report

Descriptors: (*Fluid amplifiers, Performance (Engineering)), Feedback amplifiers, Integrators, Pneumatic systems, Analog systems, Pressure, Ceramic materials, Design, Nozzles, Jets

Results from a program of design, fabrication, and evaluation of pressure proportional fluid amplifiers, gain blocks, and circuits are presented. Included is a brief discussion of the development of a multi-stage, high amplification gain block, and from this device, the development of a rudimentary pneumatic analog scale changer incorporating feedback, plus the matching of linear pneumatic resistances. The general conclusions to be drawn from the program are that the design and fabrication of functional, analog pure fluid computational circuits is feasible, that multi-stage gain blocks incorporating the basic HDL pressure gain design, or some relatively minor modification thereof, are capable of pressure gains well in excess of 10,000, and that Fotoceram glass ceramic fluid amplifiers and the process for producing them have been developed sufficiently to permit the fabrication and evaluation of complex circuitry.

13/8. INDUSTRIAL PROCESSES

AD-624 257 Fld. 13/8, 11/6
CFSTI Prices: HC $3.00 MF $0.75
GENERAL ELECTRIC CO SCHENECTADY N Y RESEARCH AND DEVELOPMENT CENTER
INVESTIGATION OF THE NATURE OF STRUCTURAL DAMAGE IN METAL-FORMING PROCESSES.
Final rept. 18 Oct 64-18 Nov 65,
by H. C. Rogers, R. C. Leech, and L. F. Coffin Jr.. Nov 65, 76p. Contract NOw-65-0097-f

Unclassified report

See also AD-612 255.

Descriptors: (*Metals, Drawing (Machine processing)), (*Drawing (Machine processing), Metals), Sheets, Copper, Aluminum alloys, Brass, Stresses, Density, Lubrication, Dies, Friction, Fracture (Mechanics), Deformation, Hydrostatic pressure, Microstructure, Damage

An experimental investigation of the structural damage in sheet drawing of tough-pitch copper, aluminum alloy 6061-T6, and 60-40 brass was undertaken with regard to the role of the stress state, particularly the hydrostatic component of stress, during deformation. Sheet drawing was carried out at ambient atmosphere and at high external fluid pressure. For the latter case, a novel high-pressure facility was employed that permits manipulation inside a 5-inch ID vessel at pressures up to 100,000 psi. Stresses within the deforming zone were determined from the Hill-Tupper slip-line field solution, the conditions of the experiments being made to match as closely as possible the assumptions of the theory regarding plane strain, constancy of yield stress, die geometry, and the absence of die friction. Although friction was indeed present, use of a Teflon spray lubricant satisfactorily lowered the coefficient of friction such that, with little error, the drawing operation could be considered frictionless. This was verified from an analysis made of the slip-line field and resulting stress state in which die friction was included. An important result from the analysis is that, depending on the die angle and reduction per pass, severe hydrostatic tension can develop at the center line of the strip, while hydrostatic compression occurs at the surfaces for the case where the external pressure is ambient.

AD-624 262 Fld. 13/8
CFSTI Prices: HC $1.00 MF $0.50
AUTOMATION INDUSTRIES INC BOULDER COLO RESEARCH DIV
ADVANCEMENT OF ULTRASONIC TECHNIQUES USING RERADIATED SOUND ENERGIES FOR NONDESTRUCTIVE EVALUATION OF WELDMENTS.
Quarterly progress rept. no. 1,
by G. L. Cross, H. R. Ellerington, and B. T. Cross. 15 Nov 65, 18p. Rept. no. tr-65-75
Contract NObs-92530 Proj. SR-007-10-04 Task 891

Unclassified report

Descriptors: (*Ultrasonic radiation, Non-destructive testing), (*Non-destructive testing, Ultrasonic radiation), (*Welds, Non-destructive testing), Reviews, Ultrasonic properties

Progress is reported on a feasibility study to determine the physics of reradiated ultrasonic energy and the practicality of using such energies for the inspection of weldments. The use of reradiated energies as used with the Delta Configuration technique has shown promise for weld inspection. The technique is the basis for this study. A literature survey and review was conducted to obtain data with reference to the physics of ultrasonic wave behavior as may be related to the Delta Configuration technique. Also, articles dealing with ways of providing visible ultrasonic waves were reviewed and the data will be used to supplement the analysis of sound waves. An analytical analysis of the sound energy partition has been conducted. The results define the regions where maximum energy is available for use by the Delta Configuration inspection technique. The region of 22 degree to 26 degree angle of incidence, water to steel, is where maximum mode conversion should take place. (Author)

AD-624 293 Fld. 13/8, 9/5
CFSTI Prices: HC $1.00 MF $0.50
NAVAL RESEARCH LAB WASHINGTON D C
SURFACE CHEMICAL METHODS OF DISPLACING WATER AND/OR OILS AND SALVAGING FLOODED EQUIPMENT. PART V. FIELD EXPERIENCE IN REMOVING SEA-WATER SALT RESIDUES, SAND, DUST, AND SOLUBLE CORROSIVE PRODUCTS FROM AN/FPS16 (XN-1) MISSILE- AND SATELLITE-TRACKING RADAR.
Interim rept.,
by H. R. Baker, and P. B. Leach. 15 Oct 65, 20p. Rept. no. nrl-6334
Proj. SR-007-08-04 Task 0617

Unclassified report

Descriptors: (*Electric equipment, Cleaning), (*Electronic equipment, Cleaning), Surface-active substances, Cleaning compounds, Ultrasonic radiation, Sea water, Salts, Radar equipment, Salvage, Sand, Dust

Surface chemical techniques were previously developed at this Laboratory for the removal of oily and/or electrolyte contamination and the displacement of water from electrical and electronic equipment. Recently, these techniques were applied to the reconditioning of an AN/FPS-16 (XN-1) radar which was badly contaminated with sea-water salt, sand, and dust after operation for several years near the beach at Patrick Air Force Base, Cape Kennedy, Florida. The method consisted of cleaning removable sections in an ultrasonic bath of emulsion cleaner, rinsing them with water, and spraying them with a water-displacing composition. Nondetachable parts were treated in a similar manner, except the emulsion cleaner was sprayed on. These methods proved to be successful in reconditioning the radar system, which consisted of the antenna and an extensive assembly of trailer-housed electronic gear and control console. (Author)

AD-624 484 Fld. 13/8, 14/2
CFSTI Prices: HC $2.00 MF $0.50
LINDEN LABS INC STATE COLLEGE PA
MACHINING HIGH PURITY ALUMINA.
Quarterly rept. no. 3, 1 Jan-1 Apr 65,
by P. A. Marshall,Jr., J. M. Infield, and S. J. Beyer. 1 May 65, 30p. Contract DA-36-039-AMC-03634 (E)

Unclassified report

See also AD-614 467.

Descriptors: (*Machining, Ceramic materials), (*Aluminum compounds, Oxides), (*Ceramic materials, Machining), Hardness, Hydrogen compounds, Fluorides, Physical properties, Heat treatment, Purification, Density

It was demonstrated that a pre-selected commercial grade, high-purity alumina (96%) can be made friable by immersion in aqueous hydrofluoric acid (52%) so that it can be machined with conventional cutting tools and then reconstituted to acceptable physical characteristics, i.e., dimensional control, porosity (open and closed pores), water absorption and a high pressure fuchin dye penetration. Further it has been demonstrated that a pre-selected, presently available commercial grade 96% alumina fired at cone 31 (1680 C) can be reconstituted at cone 33 (1745 C) to a purity level suggestive of approaching the theoretical density of alpha corundum (4.00). A basis is given for aiding in the selection of those alumina bodies which are most apt to accommodate to this new technique. Also, it is concluded that for optimizing this process, it might be well to design a body formulation which will adapt itself to this process rather than make use of existing bodies. Factors other than chemical composition, such as the primary raw material grain size and fired grain size, must also be considered. (Author)

AD-624 582 Fld. 13/8, 14/2
CFSTI Prices: HC $1.00 MF $0.50
IIT RESEARCH INST CHICAGO ILL
SYMPOSIUM ON PHYSICS AND NONDESTRUCTIVE TESTING, HELD AT SHERATON-DAYTON HOTEL, DAYTON. OHIO, SEPTEMBER 28-30, 1965.
1965, 12p.

Unclassified report

Descriptors: (*Non-destructive testing, Symposia), (*Symposia, Non-destructive testing), Abstracts, Diffraction analysis, Fatigue (Mechanics), Metals, Composite materials, Materials, Stresses, Radiography, Color photography, Infrared radiation, Ultrasonic radiation

AD-624 290 **See Fld. 9/2**

AD-624 436 **See Fld. 9/1**

AD-624 451 **See Fld. 11/8**

AD-624 513 **See Fld. 9/1**

AD-624 515 **See Fld. 9/1**

AD-624 520 **See Fld. 9/1**

AD-624 530 **See Fld. 9/1**

AD-624 571 **See Fld. 6/8**

AD-624 583 **See Fld. 9/1**

AD-624 642 **See Fld. 9/5**

AD-624 673 **See Fld. 12/2**

AD-624 748 **See Fld. 9/1**

AD-624 772 **See Fld. 11/6**

AD-624 858 **See Fld. 9/1**

13/9. MACHINERY AND TOOLS

AD-624 288 Fld. 13/9
CFSTI Prices: HC $6.00 MF $1.25
FRANKLIN INST RESEARCH LABS PHILADELPHIA PA
A BIBLIOGRAPHY (WITH ABSTRACTS) ON GASLUBRICATED BEARINGS.
Interim rept.,
by Alec Peters, and Patricia Devlin. Nov 65, 213p. Rept. no. i-A2049-25
Contract Nonr-2342 (00) Proj. NR-062-316

Unclassified report

Descriptors: (*Gas bearings, Bibliographies), Abstracts

AD-624 289 Fld. 13/9
CFSTI Prices: HC $5.00 MF $1.00
FRANKLIN INST RESEARCH LABS PHILADELPHIA PA
AEROSTATIC (EXTERNALLY-PRESSURIZED GAS LUBRICATED) THRUST BEARINGS,
by Erwin Loch. Dec 65, 181p. Rept. no. i-A2049-26
Contract Nonr-2342 (00) Proj. NR-062-316 TT 65-64616

Unclassified report

Trans. from a doctoral thesis submitted to the Technical University of Graz, Austria.

Descriptors: (*Thrust bearings, Gas bearings), (*Gas bearings, Aerostatics), Pressure, Austria, Mathematical analysis, Rotation, Geometric forms

The report deals with the static and dynamic characteristics of single- and double-acting thrust bearings of many geometrical forms.

AD-624 591 Fld. 13/9, 20/11
CFSTI Prices: HC $1.00 MF $0.50
NAVAL RESEARCH LAB WASHINGTON D C
ANALYSIS OF FRICTION TORQUE IN SIMPLE AND PRELOADED SPUR GEAR TRAINS.
Interim rept.,
by James W. Titus. 22 Oct 65, 16p. Rept. no. nrl-6319
Proj. RF-008-04-41-4500

Unclassified report

Descriptors: (*Gears, Torque), Loading (Mechanics), Transmission gears, Friction, Analysis, Data transmission systems

The first part of this study develops the relation between the required drive torque and the load torque in a lightly loaded, single gear mesh, considering Coulomb friction between the sliding tooth surfaces. Bearing and windage losses are not considered. All of the load is asssumed to be carried on a single pair of teeth, since for lightly loaded gears elastic deflections will be smaller than tooth-to-tooth errors, so that a single pair of teeth may carry the load regardless of the theoretical contact ratio. The use of 'efficiency' formulas given in the literature usually gives low values for starting torque requirements. The second part of the study extends the equations to a four-square gear train as representative of preloaded split gear trains, where friction losses are relatively greater than in simple trains. It is demonstrated that the maximum possible friction loss for a given foursquare gear train would occur when and if the two gear meshes simultaneously begin approach action. It is also demonstrated that the friction loss for a gear train using spring-loaded split gears cannot exceed values calculated on the assumption that one mesh begins approach action while the other mesh terminates recess action. (Author)

AD-624 827 Fld. 13/9
CFSTI Prices: HC $2.00 MF $0.50
AMPEX CORP REDWOOD CITY CALIF
STIFFNESS EFFECTS ON THE INFINITELY WIDE FOIL BEARING.
Technical rept.,
by A. Eshel, and H. G. Elrod Jr.. Oct 65, 34p.
Rept. no. rr-65-11
Contract Nonr-3815 (00) (X) Proj. NR-062-297

Unclassified report

Descriptors: (*Foils, Gas bearings), (*Gas bearings, Foils), Films, Tapes, Numerical analysis, Lubrication, Partial differential equations, Boundary value problems, Thickness, Deformation

Numerical solutions are presented for the film thickness of the infinitely wide, self-acting foil bearing for various values of tape stiffness. The solutions indicate that with increasing stiffness there are: a slow reduction in the nearly uniform clearance prevailing under most of the wrap angle; an increase in the peak of the undulations occurring in the region where the tape leaves the spindle; and virtually no change in the trough of these undulations. (Author)

13/10. MARINE ENGINEERING

AD-624 283 Fld. 13/10, 20/1
CFSTI Prices: HC $1.00 MF $0.50
NEW YORK NAVAL SHIPYARD BROOKLYN DESIGN DIV
USS OGDEN (LPD-5). NOISE LEVEL SURVEY SHIP'S SPACES.
Technical rept.,
by M. Merend. 1965, 9p. Rept. no. noise-241-11

Unclassified report

Descriptors: (*Naval vessels (Combatant), Ship noise), (*Ship noise, Measurement), Engine noise, Statistical data, Noise analyzers

Sound surveys were conducted in the ship's spaces during Builders Trials of 7-9 July 1965 and Preliminary Acceptance Trials of 31 August - 2 September 1965. The results indicate a generally acceptable noise level, with most compartments well under the acceptance limits. (Author)

AD-624 413 Fld. 13/10
CFSTI Prices: HC $5.00 MF $2.25
GRUMMAN AIRCRAFT ENGINEERING CORP BETHPAGE N Y
EXPERIMENTAL STUDY OF HIGH SPEED HYDROFOILS, VOLUME II, PART IV,
by H. R. Wright. 26 Aug 63, 157p. Rept. no. xar-A-45
Contract NObs-84454

Unclassified report

Descriptors: (*Hydrofoils, Fluid dynamic properties), Model tests, Design, Angle of attack, Cavitation, Pressure, Lift, Drag, Experimental data

The test program was conducted to measure the hydrodynamic characteristics of a series of transcavitating and supercavitating hydrofoil models with various planforms and sections to provide a design procedure to predict hydrodynamic characteristics for this type hydrofoil. Twenty hydrofoil models were tested at three depths and at a sufficient number of speeds and angles of attack to fully define their hydrodynamic characteristics. Lift, drag, pitching moment, and strut base pressure were measured for all models, and cavity pressure and foil pressure were measured for the supercavitating models. Classic supercavitating hydrofoil theory is shown to predict test results with an accuracy adequate for design if a modified value for the cross-flow lift coefficient is accepted. (Author)

AD-624 508 Fld. 13/10, 20/4
CFSTI Prices: HC $6.00 MF $1.25
MASSACHUSETTS INST OF TECH CAMBRIDGE DEPT OF NAVAL ARCHITECTURE AND MARINE ENGINEERING
COMPLIANT WATER WAVE ABSORBERS.
Annual rept.,
by Jerome H. Milgram. Aug 65, 266p. Rept. no. mit-DNA-65-13

Unclassified report

Descriptors: (*Water waves, Absorption), (*Absorption, Water waves), Perturbation theory, Electric filters, Hydrodynamics, Water tanks, Experimental data, Theory

This report comprises a detailed theoretical and experimental study of the problem of absorbing plane water waves by means of a moving boundary at one end of a channel. The non-linear problem is formulated as a sequence of linear problems by means of perturbation techniques. This formulation is carried out first for a general moving boundary and then for the specific case where the boundary is a hinged paddle above a solid wall. In order to avoid the parameter of the channel length in the theoretical work, this work is carried out for a semiinfinite tank. Solutions for the necessary wave absorber characteristics are determined by the first order (linear) theory. Second order solutions are determined when the incident wave is a plane, periodic, progressive wave. The theoretical developments are done with the neglect of surface tension, but these effects are considered in a separate chapter and they are accounted for in the computer programs used for the design of a wave absorbing system. The problem of synthesizing a wave absorbing system whose characteristics closely approximate an ideal absorber and which can be constructed readily is solved. The solution of this problem requires a computeraided design procedure for electric filters which may be of general interest for its own sake, apart from the remainder of this work.

AD-624 601 Fld. 13/10
CFSTI Prices: HC $2.00 MF $0.50
SCRIPPS INSTITUTION OF OCEANOGRAPHY SAN DIEGO CALIF MARINE PHYSICAL LAB
FLIP FLOATING INSTRUMENT PLATFORM,
by Earl D. Bronson, and Larry R. Glosten. 1 Jul 65, 26p. Rept. no. mpl-U-49-62 ,Reference-SIO-65-12
Contract Nonr-2216 (05)

Unclassified report

Revision of Reference SIO-62-24, AD-290 756.

Descriptors: (*Buoys, Oceanographic vessels), (*Oceanographic vessels, Buoys), Ballast tanks, Manned, Pneumatic devices, High-pressure compressors, Generators, Diesel engines

A general non-technical summation of the construction, operation and potential of the R/P FLIP. FLIP, i.e., Floating Instrument Platform, is designed as a superstable open-sea free-floating platform from which to conduct research in the field of physical oceanography primarily underwater acoustics to a scale heretofore impossible due to background noise and ship movement. (Author)

AD-624 688 Fld. 13/10
CFSTI Prices: HC $2.00 MF $0.50
DAVID TAYLOR MODEL BASIN WASHINGTON D C HYDROMECHANICS LAB
MERIT COMPARISONS OF THE SERIES 64 HIGHSPEED DISPLACEMENT HULL FORMS.
Final rept.,
by Eugene P. Clement. Nov 65, 41p. Rept. no. dtmb-2129
Proj. SS-600-00

Unclassified report

Descriptors: (*Hydrofoil boats, Hulls (Marine)), (*Hulls (Marine), Geometric forms), (*Catamarans, Hulls (Marine)), Model tests, Performance (Engineering), Drag, Slender bodies, Design

Values of residuary resistance from model tests were previously presented for a methodical series of slender displacement hull forms which had been tested up to high speeds. The report gives values of total resistance for the hull forms of the series so that their relative merits can readily be seen. The values of total resistance were calculated for boats of 200-ton displacement to facilitate comparison with resistance data for U. S. Navy hydrofoil boats. The form of the data presentation is such as to provide guidance for the design of high-speed displacement and catamaran hull forms. (Author)

AD-624 784 Fld. 13/10
CFSTI Prices: HC $2.00 MF $0.50
INSTITUTE OF NAVAL STUDIES CAMBRIDGE MASS
ECONOMIC CONSIDERATIONS IN ESTABLISHING AN OVERHAUL CYCLE FOR SHIPS: AN EMPIRICAL ANALYSIS,
by D. E. Farrar, and R. E. Apple. 13 Apr 64, 34p.
Rept. no. ins-Research-Contribution-7
Contract Nonr-3732 (00)

Unclassified report

Descriptors: (*Ships, Maintenance), (*Maintenance, Costs), Scheduling, Theory, Economics, Reliability, Optimization

Cross sectional data from the U. S. Navy's Atlantic Fleet Destroyer Force is analyzed in a three-part study of relationships between a ship's total maintenance cost, time lost from operations, reliability, and the length of its overhaul cycle. Factors such as ship age, size, complexity, usage, etc., are held constant as required. The overhaul cycle is viewed as the primary control variable by which Navy maintenance managers allocate effort between scheduled and unscheduled repairs. A minimum cost overhaul cycle is obtained. In the absence of defensible cost penalties for time lost and reliability (where the latter is measured by the frequency of unscheduled repair), minimum cost and optimal cycles are not one and the same. Tradeoffs between cost and reliability are obtained, however, and the range within which an optimal cycle may be expected to lie is narrowed considerably. (Author)

AD-624 799 Fld. 13/10, 11/3
CFSTI Prices: HC $2.00 MF $0.50
NAVAL CIVIL ENGINEERING LAB PORT HUENEME CALIF

PROTECTION OF MOORING BUOYS. PART VII. RESULTS OF SIXTH RATING INSPECTION.
Technical rept.,
by R. W. Drisko. Dec 65, 46p. Rept. no. tr-R-431
Proj. DA-Y-F020-03-04-003
Unclassified report

See also AD-616 886.

Descriptors: (*Mooring buoys, Protective treatments), (*Corrosion inhibition, Mooring buoys), Antifouling coatings, Cathodic protection, Steel, Fouling, Plastic coatings, Plastic paints, Epoxy plastics, Phenolic plastics, Polyester plastics, Vinyl plastics, Silicates, Zinc compounds

The report is the seventh of a series on the protection of mooring buoys. Fourteen test buoys were given their sixth rating for extent of coating deterioration, corrosion of steel, and fouling. A fifteenth buoy had been removed from testing at the time of the fourth inspection because of advanced deterioration. The coating system on four of the buoys were in good condition, those on nine others showed varying degrees of moderate deterioration, and one was in poor condition. Two sets of thirteen test panels each, coated with the different coating systems used on the buoys, were given their fifth rating inspection after 2-1/2 years of service. One set was exposed in San Diego Bay and the other in Port Hueneme Harbor. The condition of the coating systems on the Port Hueneme panels showed a general correlation with the test panels and buoys in San Diego. On buoys coated with antifouling paints, no detectable antifouling protection remained after 25 months, but on the test panels at both locations, two antifouling paints were still reducing fouling after 2-1/2 years. Three of the test buoys were cathodically protected with zinc anodes. The level of protection was high enough to mitigate rusting in the underwater portions of these buoys. (Author)

AD-624 438 See Fld. 13/13

AD-624 442 See Fld. 20/11

AD-624 690 See Fld. 20/1

AD-624 753 See Fld. 6/19

AD-624 766 See Fld. 6/19

AD-624 818 See Fld. 5/3

13/10.1 SUBMARINE ENGINEERING

AD-624 754 See Fld. 6/11

13/11. PUMPS, FILTERS, PIPES, TUBING AND VALVES

AD-624 652 Fld. 13/11
CFSTI Prices: HC $3.00 MF $0.50
NEW HAMPSHIRE UNIV DURHAM
INVESTIGATION AND ANALYSIS OF THE PERFORMANCE CHARACTERISTICS AND FLOW CIRCULATION IN A TEST MODEL REGENERATIVE PUMP.
Master's thesis,
by Thomas O. Englehardt. Jun 65, 55p. Contract AF33 (608)-1256
Unclassified report

Descriptors: (*Pumps, Model tests), Theory, Impellers, Momentum, Fluid flow, Performance (Engineering), Velocity, Fluid dynamic properties

The momentum analysis, even with gross assumptions of linear momentum change causing the pressure buildup, yielded results that agree with the experimental results. The characteristic curves for the test model pump are similar to published curves for regenerative pumps. Therefore, this type of momentum analysis does provide an insight into the circulation and velocity pattern that exists in conventional regenerative pumps. The circulation is very important in this theory of momentum exchange, therefore further work should be directed toward controlling the circulation to yield the desired pump characteristics. The test pump impeller design with the toroid should be compared with regenerative pumps with conventional impeller design in actual tests with other factors equalized. (Author)

AD-624 850 See Fld. 20/13

13/12. SAFETY ENGINEERING

AD-624 546 See Fld. 14/2

AD-624 675 See Fld. 12/2

13/13. STRUCTURAL ENGINEERING

AD-624 370 Fld. 13/13, 15/3, 18/5
CFSTI Prices: HC $3.00 MF $0.75
INSTITUTE FOR DEFENSE ANALYSES ARLINGTON VA WEAPONS SYSTEMS EVALUATION DIV
MAGNITUDE AND DISTRIBUTION OF WEAPON EFFECTS FOR THE DESIGN OF SHELTERS FOR PROTECTION AGAINST FALLOUT.
Research paper,
by H. A. Knapp. Jul 65, 98p. Rept. no. rp-P-194
Unclassified report

Descriptors: (*Fallout shelters, Design), (*Nuclear explosion damage, Analysis), (*Nuclear weapons, Radiation effects), (*Radiation effects, Analysis), Civil defense systems, Nuclear warfare casualties, Population, Distribution, Targets

In order to design a fallout shelter which offers a reasonable prospect of occupant survival, a quantitative estimate was made of the levels of blast, thermal pulse, initial radiation, and fallout to which the shelter location might be subjected.

AD-624 438 Fld. 13/13, 13/10
CFSTI Prices: HC $2.00 MF $0.50
NAVAL RESEARCH LAB WASHINGTON D C
CHARACTERISTIC DYNAMIC STRENGTH RATIO AS THE LIMITING PARAMETER IN SHOCK DESIGN,
Interim rept.,
by Henry C. Mayo. 2 Nov 65, 42p. Rept. no. NRL-6363
Proj. SF-013-10-01-1793
Unclassified report

Descriptors: (*Shock (Mechanics), Design), (*Dynamics, Cantilever beams), Ship structural components, Statics, Structural properties

The dynamic strength ratio of a structure is defined as the ratio of the dynamic yield strength (a number determined by multiplying the static yield strength times a dynamic loading factor) of the structural material to the maximum fiber stress in the structure when it is subject to the acceleration of gravity alone (one g). Dynamic strength ratios for bending and buckling are derived and plotted versus frequency for three types of beams, respectively modeled as single degree of freedom systems. The strength ratio plots are superimposed on sample shock spectra to illustrate which regions of the spectra are appropriate for the design of each type of beam. This comparison of the strength ratio curves and the shock spectra indicates that a specific shock spectrum amplitude is suitable for the elastic design of a given type of structure only if the dynamic strength ratio is greater than or equal to the spectrum amplitude. (Author)

AD-624 659 See Fld. 8/13

14/1. COST EFFECTIVENESS

AD-624 778 Fld. 14/1, 6/5
CFSTI Prices: HC $1.00 MF $0.50
RAND CORP SANTA MONICA CALIF
COST/BENEFIT ANALYSIS IN HEALTH,
by A. W. Marshall. Dec 65, 19p. Rept. no. p-3274
Unclassified report

Descriptors: (*Public health, Cost effectiveness), (*United States Government, Public Health), Federal budgets, Economics, Medical research, Diseases, Hospitals

The relevant work of economists and others that concern themselves with costs and benefits in the health area is reviewed. A discussion is presented of a BOB-prepared example of a program budget for health programs administered by HEW. Possible types of cost benefit analysis that might be undertaken of these programs are also examined. The main problems and opportunities for cost benefit analysis in the health area are discussed.

AD-624 810 Fld. 14/1, 5/1
CFSTI Prices: HC $2.00 MF $0.50
PICATINNY ARSENAL DOVER N J AMMUNITION ENGINEERING DIRECTORATE
THE APPLICATION OF DEFENSE VALUE ENGINEERING.
Technical memo.,
by Jules Groudan. Jan 66, 41p. Rept. no. tm-1662
Unclassified report

Descriptors: (*Value engineering, Armed forces procurement), (*Armed forces procurement, Value engineering), (*Cost effectiveness, Armed forces procurement), Department of Defense, Industrial relations, Awards, Economics, Mangement engineering

This report is intended to serve as an adjunct to a program of across-the-table discussions with contractors in an effort to resolve some of the prevailing problems at the government/industry interface since experience clearly indicated that many contractors as yet are not convinced that the Government is in earnest in its desire to implement an effective Department of Defense-wide Value Engineering Program as outlined in Defense Procurement Circular 11. (Author)

AD-624 447 See Fld. 5/1

AD-624 701 See Fld. 15/3

AD-624 702 See Fld. 15/3

AD-624 703 See Fld. 15/3

AD-624 704 See Fld. 15/3

AD-624 856 See Fld. 5/1

14/2. LABORATORIES, TEST FACILITIES, AND TEST EQUIPMENT

AD-624 311 Fld. 14/2, 19/6, 19/1
CFSTI Prices: HC $3.00 MF $0.75
NAVAL ORDNANCE TEST STATION CHINA LAKE CALIF
INSTRUMENT OPERATIONS ON SYSTEMS DEVELOPMENT DEPARTMENT RANGES.
Oct 65, 70p. Rept. no. nots-TP-2692-Rev-2
Unclassified report

See also AD-262 777 and AD-418 204.

Descriptors: (*Ordnance laboratories, Naval research laboratories), (*Guided missile ranges, Instrumentation), Test facilities, Test methods, Photographic equipment, Optical equipment, Telemeter systems, Data processing systems, Guided missile tracking systems, Meteorology, Meteorological instruments, Weather forecasting, Firing tests (Ordnance)

The Systems Development Department is responsible for conducting development and test programs for the Bureau of Weapons, its agencies and contractors. One of the primary program requirements is the gathering of complete and accurate data to meet complex and stringent specifications. This information is compiled from photographic and electronic records. The Instrument Operations Division provides and operates the major portion of the Department's facilities that produce these records. To accomplish the various tasks which comprise this job, the Instrument Operations Division is organized into five branches, each responsible for a specific segment of overall instrument operations. These branches include the Photographic Laboratory Branch, the Optical Instrumentation Branch, the Timing and Telemetry Branch, the Metric Electronics Branch, and the Atmospheric Studies Branch. The branch names imply the various aspects of the Division mission that they handle. (Author)

AD-624 325 Fld. 14/2
ROYAL INST OF TECH STOCKHOLM (SWEDEN) DEPT OF INORGANIC CHEMISTRY
TECHNIQUES FOR CALORIMETRIC TITRATIONS IN THE SEMI-MICRO RANGE. PART I. APPARATUS. A SENSITIVE, AUTOMATICALLY RECORDING QUASIISOTHERMAL CALORIMETER,
by Stig Johansson. 1965, 24p. Contract AF61 (052)-162 Grant ,AF-EOAR-8-63 AFOSR 65-1649

Unclassified report

Availability: Published in Arkiv For Kemi V24 N10 P189-209 1965. Copies to DDC users only.

Descriptors: (*Calorimeters, Volumetric analysis), (*Volumetric analysis, Calorimeters), Electric bridges, Thermistors, Temperature, Sweden

An 'isothermal-jacket' calorimeter suitable for the measurement of small heat effects is described. The apparatus is normally used for incremental calorimetric titrations in solution chemistry. The temperature measuring system consists of a conventional Wheatstone bridge with a thermistor assembly in one of the arms. The unbalance voltage is amplified and fed into a recorder which describes the temperature-time curve. The performance of the calorimeter is nearly isothermal but also nearly adiabatic for the heat effects normally-encountered (about 10 J; the term semi-micro is suggested for this range of calorimetry). The resulting temperature rise of the system is less than 0.02 degrees. The normal temperature sensitivity is about =0.0000210 degrees, corresponding to =0.02 J, which is close to the practical limit set by the temperature inhomogeneity due to incomplete stirring in the reaction mixture. The precision as judged from the spread of data in a titration is 0.5% or better. (Author)

AD-624 471 Fld. 14/2, 20/13
CFSTI Prices: HC $1.00 MF $0.50
ARMY ELECTRONICS COMMAND FORT MONMOUTH N J
A SIMPLE LEVEL INDICATOR FOR LIQUID HELIUM AT ALL TEMPERATURES.
Technical rept.,
by R. M. Wasilik, D. A. Neeper, and D. C. Pearce. Aug 65, 13p. Rept. no. ecom-2626
Proj. DA-1PO-14501-B11A Task 1PO-14501-B11A-01

Unclassified report

Descriptors: (*Liquid level gages, Helium), (*Helium, Liquid level gages), (*Liquified gases, Liquid level gages), Cryogenics, Resistance (Electrical), Resistors, Multimeters

Characteristics of a very simple liquid helium level indicator for all temperatures are described. Levels can be measured with an accuracy of = 1 millimeter using a carbon resistor, battery and multimeter with a negligible liquid helium loss. (Author)

AD-624 473 Fld. 14/2, 6/20, 6/19
CFSTI Prices: HC $4.00 MF $0.75
AEROJET-GENERAL CORP DAYTON OHIO
TOXIC HAZARDS RESEARCH UNIT DESIGN AND CONSTRUCTION PHASE.
Annual rept. 1 Jun 63-15 Feb 65,
by J. D. MacEwen. Sep 65, 111p. Rept. no. agc-3024
Contract AF33 (657)-11305 Proj. AF-6302 Task 630201
AMRL TR-65-125

Unclassified report

Descriptors: (*Toxicity, Medical research), (*Oxygen consumption, Toxicity), (*Space medicine, Oxygen consumption), Hazards, Contamination, Spacecraft cabins, Atmosphere, Pressure breathing, Liquefied gases, Oxygens, Monitors, Safety, Training, Personnel, Laboratories, Space simulation chambers

A facility was designed and constructed at Wright-Patterson Air Force Base for the specific purpose of conducting inhalation toxicology research. This facility is unique in that it has considerable functional variability and may be used for the study of space cabin toxicity under altitude and 100% oxygen conditions. Additionally, the laboratory was designed for use as a standard inhalation toxicology laboratory for the study of Air Force materials which may constitute a hazard to ground support personnel. This report describes the design and functional capability of the Toxic Hazards Research Unit laboratory which became operational in September of 1964. Toxicology research of the nature described has been initiated and will be reported upon as individual experiments are completed. (Author)

AD-624 510 Fld. 14/2, 19/4
CFSTI Prices: HC $2.00 MF $0.50
NAVAL ORDNANCE LAB WHITE OAK MD UNDERWATER EXPLOSIONS DIV
DEVELOPMENT OF PROBES FOR MEASURING THE MAXIMUM RADIUS OF UNDERWATER EXPLOSION BUBBLES,
by D. E. Phillips, and B. W. Scott. 25 Oct 65, 30p. Task RRRE-51001-F008-21-03
NOLTR 65-17

Unclassified report

Descriptors: (*Underwater explosions, Explosion effects), (*Bubbles, Measurement), Meters, Physical properties, Pentolite

An instrument for finding the position of a gas-water interface was developed and successfully used to measure the radius of an underwater explosion bubble. The change in conductivity between two parallel rods as the interface moves along the rods is recorded on film by an oscilloscope. Simultaneous photographic and probe measurements of maximum radii showed agreement within slightly over one percent. Bubble parameters obtained with the probes show some disagreement with free water measurements, possibly the result of flattening of the assumed spherical bubble by bottom and surface proximity. (Author)

AD-624 546 Fld. 14/2, 6/19, 13/12
CFSTI Prices: HC $2.00 MF $0.50
SOUTHWEST RESEARCH INST SAN ANTONIO TEX DEPT OF STRUCTURAL RESEARCH
A STUDY OF THE USAF SCHOOL OF AEROSPACE MEDICINE HUMAN CENTRIFUGE.
Final rept., phase 1,
by L. A. Eggleston, R. K. Johnston, and A. J. Pryor. 29 Oct 65, 35p. Contract AF41 (609)-2715 Proj. SwR1 03-1787

Unclassified report

Descriptors: (*Acceleration tolerance, Laboratory equipment), (*Centrifuges, Acceleration tolerance), (*Fire safety, Centrifuges), Hydraulic equipment, Hydraulic fluids, Hazards, Fire alarm systems, Fire extinguishers, Foams, Space medicine

A study was made of the fire hazards peculiar to the equipment and operation of the USAF School of Aerospace Medicine Human Centrifuge at Brooks Air Force Base, San Antonio, Texas. This study was based on present Air Force Standards. No major hazards were found, however, recommendations are presented which provide more in-depth protection for the centrifuge as it now exists. The major recommendation is the installation of a fire-fog deluge system (with alarm) in the pump room and sub-pit where the storage of combustibles is necessary. (Author)

AD-624 550 Fld. 14/2, 20/14
CFSTI Prices: HC $2.00 MF $0.50
NATIONAL BUREAU OF STANDARDS BOULDER COLO
FIELD STRENGTH MEASUREMENTS, PHASE II.
Technical rept. no. 3, Mar 63-Jun 64,
by A. C. Stewart. Oct 65, 45p. Contract AF30 (602)-2936 Proj. AF-4540 Task 454001
RADC TR-65-279

Unclassified report

See also AD-606 978.

Descriptors: (*Radio fields, Measuring devices (Electrical + electronic)), (*Measuring devices (Electrical + electronic), Radio fields), High frequency, Intensity, Measurement, Radio waves, Multipath transmission, Antennas, Antenna apertures, Calibration

The measurement of the strength of radio frequency fields at high frequency and above has followed practices which are standard for the measurement of field strength at medium and low frequencies. Variability of measurements made in practical situations and a lack of reproducibility of measurements made under apparently identical conditions has prompted an investigation of equipment and methods used in the determinations. The field strength measurement study was undertaken to understand the nature of the problem and to develop techniques for more accurate determinations of field strength and more significant interpretation of measured data. A Stoddart Aircraft Company NM-52A field strength meter which has a frequency range of 375 to 1000 MHz was calibrated and evaluated using conventional methods. Instrumentation to extend the upper frequency limit of the testing procedure from 10 to 20 GHz was procured. Field strength meter antennas in the 2 to 4 GHz frequency range were tested and comparisons made with similar tests conducted by RADC. Methods of simplification of data acquisition and processing for use in aperture synthesis were investigated. (Author)

AD-624 587 Fld. 14/2
CFSTI Prices: HC $1.00 MF $0.50
C G S SCIENTIFIC CORP SOUTHAMPTON PA
OPERATION AND MAINTENANCE MANUAL FOR VACUUM AND INBLEED CONTROL SYSTEM, AIR LOCK CONTROL SYSTEM, CHAMBER LINER DIFFERENTIAL PRESSURE CONTROL SYSTEM AND INTERIOR GAS FLOW RECORDING SYSTEM FOR ALTITUDE RESEARCH CHAMBERS AL, A2, A3, AND A4.
Final rept. for 5 Oct 65.
5 Oct 65, 19p. Contract AF41 (609)-2730 Proj. AF-51024

Unclassified report

Availability: Microfiche only after original copies exhausted.

Descriptors: (*Instruction manuals, Control systems), (*Altitude chambers, Control systems), Recording systems

AD-624 636 Fld. 14/2, 6/19
AIR TECHNICAL SERVICE COMMAND WRIGHT-PATTERSON AFB OHIO AERO MEDICAL LAB
HUMAN CENTRIFUGE.
Memo. rept.
28 Jul 42, 6p. Rept. no. exp-M-49-696-4
Unclassified report

Availability: Reference only at DDC Hq. after original copies exhausted. Not for sale.

Descriptors: (*Acceleration tolerance, Laboratory equipment), (*Centrifuges, Acceleration tolerance), (*Humans, Acceleration tolerance), Aviation medicine, Electric motors, Generators, Government procurement

AD-624 746 Fld. 14/2, 17/7, 16/4
CFSTI Prices: HC $2.00 MF $0.50
HARRY DIAMOND LABS WASHINGTON D C
EXPERIMENTAL MECHANICAL TIMER WITH DETACHED LEVER ESCAPEMENT AND DIGITAL READOUT SYSTEM,
by David L. Overman, and David S. Bettwy. 31 Aug 65, 43p. Rept. no. TM-65-44
Proj. DA-1N222901A207
Unclassified report

Descriptors: (*Time interval counters, Digital systems), Mechanical engineering, Performance (Engineering), Operation, Timing devices, Torque, Guided missile components, Guidance

Results of design investigations and performance tests are presented for an experimental mechanical interval timer. This unit was designed to provide one output, with an accuracy of =0.2 sec, selected from six possible timing intervals between 40 and 120 sec by a one-knob control. It is an all-mechanical system with a volume of approximately 6 cu in. The models performed within specifications, and test results indicate that the desired accuracy can be achieved in a production timer of this type (Author)

AD-624 825 Fld. 14/2
CFSTI Prices: HC $1.00 MF $0.50
GENERAL ELECTRIC CO SCHENECTADY N Y RESEARCH AND DEVELOPMENT CENTER
TIME-OF-FLIGHT SPECTROMETER.
Quarterly rept. no. 12,
by G. C. Baldwin. Nov 65, 5p. Contract Nonr-3942 (00)
Unclassified report

Descriptors: (*Spectrum analyzers, Data), Computers, Mathematical analysis, Pressure, Measurement, Gases, Statistical analysis, Monitors

Activity was concentrated on completion of the computer program for data reduction and on the installation and checkout of the auxiliary system for sample gas supply and pressure measurement. An investigation of the statistics of the detector was begun. Numerous calibration runs were made to refine bias settings.

AD-624 841 Fld. 14/2
CFSTI Prices: HC $1.00 MF $0.50
DIRECTORATE OF SCIENTIFIC INFORMATION SERVICES OTTAWA (ONTARIO)
A PYROLYTIC CELL FOR THE CHROMATOGRAPHIC STUDY OF POLYMERS,
by P. Drienovsky, and O. Kysel. Aug 65, 5p.
Rept. no. t-1-SI
TT 65-64803
Unclassified report

Trans. of Chemicke Zvesti (Czechoslovakia) v17 p912-5 1963. Also available from NRC as C-5559.

Descriptors: (*Pyrolysis, Test equipment), (*Polymers, Chromatographic analysis), (*Chromatographic analysis, Pyrolysis), Czechoslovakia

A pyrolytic cell is described which may be used in conjunction with gas chromatography in the study of pyrolytic processes and the analysis of polymer substances. (Author)

AD-624 296 **See Fld. 7/2**

AD-624 302 **See Fld. 20/4**

AD-624 484 **See Fld. 13/8**

AD-624 532 **See Fld. 6/11**

AD-624 576 **See Fld. 5/9**

AD-624 582 **See Fld. 13/8**

AD-624 622 **See Fld. 6/12**

AD-624 649 **See Fld. 6/3**

AD-624 654 **See Fld. 17/2**

AD-624 734 **See Fld. 20/6**

AD-624 765 **See Fld. 20/6**

14/4. RELIABILITY

AD-624 769 Fld. 14/4, 9/1
CFSTI Prices: HC $6.00 MF $1.50
BATTELLE MEMORIAL INST COLUMBUS OHIO
RADC RELIABILITY PHYSICS NOTEBOOK,
by C. W. Hamilton, B. J. Nicholson, A. B. Timberlake, H. W. Ray, and T. S. Shilliday. Oct 65, 292p. Contract AF30(602)-3504 RADC TR-65-330
Unclassified report

Descriptors: (*Reliability (Electronics), Solid state physics), Degradation, Aging (Materials), Failure (Electronics), Test methods, Mathematical models

The results of physical and chemical investigations on basic mechanisms and processes in materials which cause or contribute to degradation, aging, and failure of electronic devices are summarized. Data is presented, in practical form wherever possible, for use by design and test engineers concerned with the assessment, prediction, and improvement of the reliability of solid state electronic devices. Techniques and procedures for obtaining data on specific part types and for applying such data to accelerated testing, screening, and reliability prediction programs are discussed. Format of the report is designed to facilitate periodic revision and inclusion of results of future investigations in basic failure mechanisms in electronic materials. (Author)

AD-624 711 **See Fld. 4/1**

14/5. REPROGRAPHY

AD-624 470 Fld. 14/5, 15/7, 6/16
CFSTI Prices: HC $4.00 MF $0.75
NORTH AMERICAN AVIATION INC COLUMBUS OHIO
EVALUATION OF AN IMAGE QUALITY ENHANCEMENT TECHNIQUE.
Final rept. Dec 62-Dec 64,
by Robert W. Brainard, and Kenneth B. Caum. Sep 65, 102p. Contract AF33(657)-9686 Proj. AF-665A AMRL TR-65-143
Unclassified report

See all AD-616 895.

Descriptors: (*Photographic reconnaissance, Photointerpretability), (*Aerial photography, Photographic acuitance), (*Photographic images, Visual perception), Images, Pattern recognition, Display systems, Intelligibility, Visibility, Video signals, Image intensifiers (Electronics), Electrooptics, Detection

A technique for enhancing the quality of images was investigated. The technique consists of obtaining a video signal from a transparency and adding to this signal its negative second derivative. The technique was investigated by comparing human performance on images produced from the video signal and its derivative with images produced from the video signal alone. Four classes of images, defined by their content, were investigated: tactical, airfields, aircraft, and artificial 'C' forms. A variety of target detection, classification, and identification tasks were studied, and performance indices such as completeness, accuracy, and speed were calculated from the basic performance data. The results indicated that the enhancement technique produces both a statistically and a practically significant improvement in performance. The relative magnitude of the mprovement increased as the difficulty of the performance task increased. The enhancement technique improves performance principally by increasing the number of correct responses, and to a lesser extent by reducing the number of incorrect responses. (Author)

AD-624 742 Fld. 14/5
CFSTI Prices: HC $2.00 MF $0.50
ROME AIR DEVELOPMENT CENTER GRIFFISS AFB N Y SPACE SURVEILLANCE AND INSTRUMENTATION BRANCH
ENVIRONMENTAL CONTROL AND INSTALLATION OF A PRECISION AERIAL CAMERA.
Final rept., 1 Aug 64-30 Jun 65,
by Charles W. Portney. Nov 65, 34p. Rept. no. radc-TR-65-375
Proj. 6512 Task 651201
Unclassified report

Descriptors: (*Aerial cameras, Installation), (*Installation, Controlled atmospheres), Effectiveness, Radar equipment, Temperature control, Airborne, Test equipment, Errors

A precision aerial camera used in radar evaluation was installed in an aircraft. Installation factors which contribute to the camera system errors were studied to minimize the additional errors introduced when the camera is operated at high altitudes in an unprotected area of an aircraft. The selection of the aircraft camera window and an environmental chamber along with its temperature control system are discussed. It is shown that temperature regulation is essential, while variations in pressure produce negligible errors. Camera stabilization and isolation from the aircraft was not necessary in these tests to prevent degradation of the camera resolution. Test data show that preheating the camera chamber prior to flight, along with regulated heat input, is essential to provide a uniform camera temperature for the duration of the flight. It is concluded that the required camera system accuracy of =10 microns on the photo scale can be achieved when the installed camera, including the camera window, is calibrated and operated in a temperaturecontrolled environment. Schematics and blueprints of a typical installation are included. (Author)

AD-624 839 Fld. 14/5, 8/2
CFSTI Prices: HC $3.00 MF $0.75
ARMY ENGINEER GEODESY INTELLIGENCE AND MAPPING RESEARCH AND DEVELOPMENT AGENCY FORT BELVOIR VA
EVALUATION AND TEST OF A FIVE-COLOR ELECTROSTATIC PRINTING MACHINE FOR THE REPRODUCTION OF TOPOGRAPHIC MAPS AND CHARTS.

Technical rept.,
by James W. Gladden. Oct 65, 100p. Rept. no. 25-TR
Proj. DA-1M643315D577 Task 1M643315D57703

Unclassified report

Availability: Microfiche only after original copies exhausted.

Descriptors: (*Electrophotography, Color photography), (*Maps, Electrophotography), Effectiveness, Photographic equipment, Reproduction

The report covers the test and evaluation of an engineer-design, test-model, five-color, electrostatic printing machine for the reproduction of 22 1/2- by 30-inch topographic maps from 70-mm microfilm originals. The reproductions are on photoconductive paper utilizing liquid-immersion development. The report also treats the suitability of the machine design as a basis for the combined engineer test - service test models. This report evaluates the registration, image resolution, dimensional stability, continuous-tone possibilities, image quality, maximum-image size, speed, sheeting, and other capabilities of the machine and system for use in printing topographic maps. The report concludes that: The five-color, electrostatic printing machine utilizing 70-mm film chips and liquid immersion development has demonstrated a capability for reproducing acceptable, multicolor topographic maps for field use; The basic machine configuration of the five-color, electrostatic printing machine is sound; Various machine processing components need to be modified in order to increase the quality and accuracy of map reproduction. (Author)

AD-624 625 **See Fld. 2/4**

15/1. ANTISUBMARINE WARFARE

AD-624 677 Fld. 15/1, 12/2
ILLINOIS INST OF TECH CHICAGO DEPT OF MECHANICAL AND AEROSPACE ENGINEERING
A 'STATIC' SOLUTION TO A 'DYNAMIC' PROBLEM IN ACQUISITION PROBABILITY.
by Bernard Rasof, and Leonard S. Abrams. 1965, 30p.

Unclassified report

This paper is a revision and extension of NOTS-521, Contract N123S-75690.

Availability: Published in Naval Research Logistics Quarterly V12 N1 P65-93 Mar 1965. Copies to DDC users only.

Descriptors: (*Antisubmarine warfare, Kill probabilities), (*Homing torpedoes, Kill probabilities), (*Target acquisition, Probability), Operations research, Acoustic torpedoes

The paper reports a novel solution to a special case of a classical problem in operations research, 'The probability that an acoustic homing torpedo will 'acquire' a submarine.' Because of uncertainties in the position of submarine relative to torpedo an exact kinematic solution to the problem is not possible, and only a probabilistic solution may be obtained. The complicated realistic problem is idealized here to a tractable model by a small number of simplifications; later the effect of removing these simplifications one at time is examined, and it is made plausible that each has only a small influence on the acquisition probability. As an illustration of the application of the concepts developed, an example in which the submarine is assumed to move radially outward from the torpedo-but otherwise incorporating reasonable assumptions about the kinematics of the torpedo and submarine - is completely solved in detail. In this example the uncertain position of the submarine is given by simple frequency distributions; a more complicated case could be solved by numerical methods. The solution of this specialized problem is particularly interesting because of the immediate and unexpected operational research results which may be inferred. (Author)

15/3. DEFENSE

AD-624 679 Fld. 15/3, 1/3
CFSTI Prices: HC $3.00 MF $0.75
JOHNS HOPKINS UNIV BALTIMORE MD
THE B-70, A CHAPTER IN DEFENSE POLICY.
Master's thesis,
by Curtis G. Cook. 1965, 82p. Contract AF33 (608)-1300

Unclassified report

Availability: Microfiche only after original copies exhausted.

Descriptors: (*National defense, Bombers), (*Bombers, National defense), History, United States Government, Military personnel, Attitudes, Strategic Air Command, Department of Defense, Military strategy

The defense policies, particularly those which guided the military behavior of the United States from 1951 through 1962 are discussed. A chronological study of the events of the B-70 program is outlined, and the issues of transient importance as well as those which ultimately influenced the outcome are identified and discussed. A review and commentary on the important arguments in the B-70 program is also presented, and finally the defense policy implications of the important factors are summarized.

AD-624 701 Fld. 15/3, 14/1, 12/2, 18/3
CFSTI Prices: HC $3.00 MF $0.75
RESEARCH TRIANGLE INST DURHAM N C OPERATIONS RESEARCH AND ECONOMICS DIV
SENSITIVITY ANALYSIS OF CIVIL DEFENSE SYSTEMS AND COMPONENTS. A COST-EFFECTIVENESS COMPUTER PROCEDURE FOR OPTIMUM ALLOCATION OF FALLOUT SHELTER SYSTEM FUND UNDER UNIFORM OR VARIABLE RISK ASSUMPTIONS.
Final rept., Vol. 1,
by Floyd M. Guess. 1 Oct 65, 88p. Rept. no. R-OU-157
Contract OCD-PS-64-56 Task 4113E

Unclassified report

Descriptors: (*Civil defense system, Radioactive fallout), (*Fallout shelters, Cost effectiveness), (*Cost effectiveness, Fallout shelters), Mathematical models, Programming (Computers), Federal budgets, Radiological dosage, Nuclear warfare, Operations research, Statistical analysis

The dynamics of civil defense planning and systems evaluation require a procedure that yields approximate answers to questions concerning effective fallout shelter improvement programs. To accomplish this, a computerized model for the CDC 3600 is developed and demonstrated for OCD Region 6. The model permits an evaluation of shelter improvement programs against any fallout environment, but it is particularly valuable when RISK-type expressions of the probable fallout environment are used as inputs. Using detailed data from the National Fallout Shelter Survey and equally detailed estimates of the probable fallout hazard in a small area (counties, in the demonstration), the extent to which an area's population is inadequately protected is determined. Fallout shelter system funds are then allocated to areas of need in an optimal manner. The allocation employs shelter cost data obtained from Phase 2 of the National Fallout Shelter Survey on ventilation and shielding improvements. Estimated costs for package ventilation (PKV) and shelter in new construction are also employed in the demonstration in OCD Region 6. In all, 14 cost studies are run, using selected combinations of the budget level, the fallout risk level, etc.

AD-624 702 Fld. 15/3, 14/1, 12/2, 18/3
CFSTI Prices: HC $3.00 MF $0.75
RESEARCH TRIANGLE INST DURHAM N C OPERATIONS RESEARCH AND ECONOMICS DIV
A SENSITIVITY ANALYSIS OF SELECTED PARAMETERS BASED ON 8 SMSA'S.
Final rept., vol. 2,
by H. Rodney Sink. 1 Oct 65, 74p. Rept. no. R-OU-157
Contract OCD-PS-64-56 Proj. RTI-OU-157 Task 4113E

Unclassified report

Descriptors: (*Civil defense systems, Radioactive fallout), (*Fallout shelters, Civil defense systems), (*Operations research, Civil defense systems), Mathematical models, Programming (Computers), Federal budgets, Radiological dosage, Nuclear warfare, Cost effectiveness, Statistical analysis

In order to perform a sensitivity analysis of selected parameters of interest in Civil Defense systems analysis, probable casualties are estimated for 8 SMSA's over a range of fallout environments and shelter utilization patterns. The selected parameters are: SMSA population, population density, and ratio of shelter spaces to population; fallout arrival time and reference intensity; and restrictions on movement of people to shelter, leading to varying patterns of shelter utilization. The SMSA's are selected by 'judgment sampling' and range in population from 74,000 to 408,000. The fallout environments used range from a reference intensity of 600 r/hr and 7 hours time of arrival to a reference intensity of 30,000 r/hr and 1 hour time of arrival. The movement-toshelter restrictions are: (1) movement restricted to the Standard Location (SL) of residence, (2) movement restricted to within two miles of the SL of residence, and (3) unrestricted movement to shelter anywhere within the SMSA. Also, (4) the transportation algorithm is used to determine the optimal (minimum casualty) allocation of people to shelter for each time of arrival and reference intensity combination. This allocation serves as a benchmark of ideality against which to measure other patterns of shelter utilization. Casualties are computed for each of the four movement patterns over the range of attack environments.

AD-624 703 Fld. 15/3, 14/1, 12/2, 18/3
CFSTI Prices: HC $3.00 MF $0.75
RESEARCH TRIANGLE INST DURHAM N C OPERATIONS RESEARCH AND ECONOMICS DIV
SENSITIVITY ANALYSIS OF CIVIL DEFENSE SYSTEMS AND COMPONENTS. A GENERALIZED SENSITIVITY ANALYSIS OF CD SYSTEMS.
Final rept., vol. 3,
by John H. Neblett, and Kenneth E. Willis. 1 Oct 65, 74p. Rept. no. R-OU-157
Contract OCD-PS-64-56 Task 4113E

Unclassified report

Descriptors: (*Civil defense system, Radioactive fallout), (*Nuclear warfare casualties, Mathematical models), (*Radiological dosage, Mathematical models), Programming (Computers), Federal budgets, Fallout shelters, Nuclear warfare, Operations research, Cost effectiveness, Statistical analysis

This sensitivity analysis employs mathematical models which estimate the total dose, Maximum ERD, and probability of casualty or fatality for an individual exposed to a particular radiological environment. The objective of the analysis is to determine the relative importance of the parameters normally employed in evaluating Civil Defense systems; i.e., to determine those parameters which, through large variance or inaccurate estimates, will contribute most to erroneous evaluations of CD systems. The sensitivity of the dose (or probability of casualty) to variations in the

input parameters defining the radiological environment is examined. The total dose model is analytical and the ERD model is computerized. The parameters examined are reference intensity, time of arrival, time outside in fallout, radiation decay exponent, ERD recovery fraction, ERD recovery rate, duration of fallout buildup, and protection factor. Sensitivity indices are calculated for each parameter. The sensitivity index is defined as the fractional change in dose (or probability of casualty or fatality) divided by the corresponding fractional change in the input variable. It is concluded that dose and casualty computations are quite sensitive to errors in the field decay exponent, and they remain sensitive over the examined range.

AD-624 704 Fld. 15/3, 14/1, 12/2, 18/3
CFSTI Prices: HC $2.00 MF $0.50
RESEARCH TRIANGLE INST DURHAM N C OPERATIONS RESEARCH AND ECONOMICS DIV
SENSITIVITY ANALYSIS OF CIVIL DEFENSE SYSTEMS AND COMPONENTS. INTRODUCTION AND SUMMARY.
Final rept.,
by John H. Neblett, Floyd M. Guess, H. Rodney Sink, and K. E. Willis. 1 Oct 65, 26p. Rept. no. R-OU-157
Contract OCD-PS-64-56 Task OCD-4113E
Unclassified report

Descriptors: (*Civil defense system, Radioactive fallout), (*Operations research, Civil defense system), (*Fallout shelters, Civil defense systems), Cost effectiveness, Fallout shelters, Federal budgets, Mathematical models, Programming (Computers), Radiological dosage, Nuclear warfare, Nuclear warfare casualties, Statistical analysis

The document summarizes a three part study concerning sensitivity analysis of CD systems and components in a fallout environment. In the first, a cost/effectiveness computer program is developed for optimum allocation of fallout shelter system development funds under uniform or variable risk assumptions. This program, intended for use in OCD planning studies, is programmed for the CDC 3600. It is applied in example studies using data on OCD Region 6. The second part of the study is a sensitivity analysis of selected parameters based on 8 SMSA's. It employs the transportation algorithm in a study of movement of people to fallout shelters. The results show how estimated casualties vary as movement-to-shelter patterns vary from restriction to a standard location up to free movement within the SMSA. They also indicate that detailed planning for shelter utilization can be very effective in reducing expected fallout casualties when the number of shelter spaces exceeds the population of an SMSA. In the third part of the study, a generalized sensitivity analysis is made of the parameters used in fallout vulnerability analysis models which determine total dose and equivalent residual dose. (Author)

AD-624 706 Fld. 15/3
CFSTI Prices: HC $3.00 MF $0.50
STANFORD RESEARCH INST MENLO PARK CALIF
CIVIL DEFENSE IN GERMANY,
by Arthur A. McGee. Oct 65, 54p. Contract OCD-OS-63-184 Proj. SRI-MU-4559 Task 2621A
Unclassified report

Descriptors: (*West Germany, Civil defense systems), (*Civil defense systems, West Germany), Law, Government (Foreign), Warning systems, Monitors, Fallout shelters, Civil defense personnel, Evacuation, Population, Police, Hospitals, Industrial production, Food, Transportation, Water supplies

The report contains the results of the study of civil defense planning and preparation in the Federal Republic of Germany. The studies are primarily oriented toward defining operational organization, although policy, planning, and training organizations that have had a strong impact in promoting the growth of civil defense preparedness were also investigated. (Author)

AD-624 370 **See Fld. 13/13**

AD-624 463 **See Fld. 15/7**

AD-624 775 **See Fld. 5/3**

15/5. LOGISTICS

AD-624 252 Fld. 15/5
CFSTI Prices: HC $4.00 MF $0.75
PLANNING RESEARCH CORP LOS ANGELES CALIF
AN ANALYSIS OF THE INVENTORY RANGE PROBLEM,
by Andrew J. Clark. 1 Jul 62, 101p. Rept. no. prc-R-254
Contract Nonr-2713 (00)
Unclassified report

Descriptors: (*Inventory analysis, Maintenance), Mathematical models, Catalogs, Decision theory, Costs, Stock level control

In contrast with inventory problems that are concerned with when and how much to order of a given repair part, an analysis is made as to which of the many parts in a complex equipment should be considered for stockage as repair parts. An analytic model is developed that provides inventory range decisions that minimize total repair and inventory support costs at a given maintenance activity. The way in which parts are interrelated in the equipment parts hierarchy is explicitly recognized in the model. As by-products, the model prescribes the kind of repair actions to apply to a failed unit of the equipment and, indirectly, the kind and amount of repair capability that should be provided. The model has potential application to other problems involving the parts hierarchy, such as determining optimal module sizes. (Author)

AD-624 285 Fld. 15/5, 5/3
CFSTI Prices: HC $1.00 MF $0.50
NORTHWESTERN UNIV EVANSTON ILL DEPT OF GEOGRAPHY
TRANSPORTATION FORECAST AND PREDICTION STUDY,
by W. L. Garrison. 1961, 10p. Contract DA-44-177-TC-685 ,DA-44-177-TC-574
Unclassified report

Descriptors: (*Transportation, Economics), (*Economics, Transportation), Railroads, Roads, Compatibility, Topology, Operations research

This paper provides an overview of the structure of and progress on a study of certain basic aspects of the development of transportation networks. It was noted that the level and character of transportation development are viewed as a function of certain characteristics of the area containing that transportation. Five ways in which transportation development can be given operational meaning were also discussed. (Author)

AD-624 443 Fld. 15/5, 5/1, 5/10
CFSTI Prices: HC $2.00 MF $0.50
ROWLAND AND CO HADDONFIELD N J
HUMAN JUDGMENT AS A FACTOR IN THE GENERATION OF SHIPS' ALLOWANCE LISTS.
27 Jul 65, 48p. Rept. no. r and C-65-7-100
Contract N600 (23)63892
Unclassified report

Descriptors: (*Spare parts, Decision making), (*Reasoning, Logistics), (*Ships, Spare parts), (*Management engineering, Logistics), Optimization, Naval research

A set of recommended research activities is outlined which would create and test a procedure for including human judgment in the allowance list generation process. Under the procedure, expert judgment from Naval personnel, engineers, and others would be systematically obtained, incorporated as part of an over-all model, and used to guide allowance list decision making behavior. A step-by-step account of work required to create a standardized procedure suitable for Navy-wide allowance list practice. (Author)

AD-624 756 Fld. 15/5, 12/2
OFFICE OF NAVAL RESEARCH WASHINGTON D C
NAVAL RESEARCH LOGISTICS QUARTERLY, VOLUME 12, NO. 1.
Mar 65, 146p.
Unclassified report

See also PB-121 993.

Availability: Hard copy available from Superintendent of Documents, GPO,Washington, D. C. 20402, $0.50.

Descriptors: (*Naval research, Logistics), (*Logistics, Naval research), (*Mathematical programming, Logistics), Abstracts, Operations research, Statistical analysis, Probability

AD-624 463 **See Fld. 15/7**

15/7. OPERATIONS, STRATEGY, AND TACTICS

AD-624 457 Fld. 15/7
CFSTI Prices: HC $1.00 MF $0.50
RAND CORP SANTA MONICA CALIF
LANCHESTER MODELS FOR PHASE II INSURGENCY,
by Marvin B. Schaffer. Nov 65, 14p. Rept. no. p-3261
Unclassified report

Descriptors: (*Lanchester equations, Military strategy), (*Military strategy, Lanchester equations), Armed forces operations, Operations research

Deterministic forms of Lanchester's Equations applicable to Phase II insurgency are developed. Three types of military activity are identified and modeled: (1) Skirmish where maneuver is used on both sides and surprise is not a major factor, (2) Ambush where, due to the surprise element, the attackers' weapon efficiencies are undergoing rapid and significant change during the early stages of conflict, and (3) Siege, attack of a fixed perimeter fortification (typically, Strategic Hamlets). The effects of captured-in-action and troop morale as manifest in battle-stress desertions are included in each case. Numerical solutions for illustratively chosen parameters are obtained by digital computer. (Author)

AD-624 463 Fld. 15/7, 15/5, 15/3
CFSTI Prices: HC $2.00 MF $0.50
RAND CORP SANTA MONICA CALIF
MILITARY ANALYSIS,
by E. S. Quade. Nov 65, 36p. Rept. no. rm-4808-PR
Contract AF49 (638)-700
Unclassified report

Descriptors: (*Defense systems, Systems engineering), (*Systems engineering, Defense systems), (*Military strategy, Defense systems), Costs, Effectiveness, Armed forces supplies, Military tactics, Military requirements, National defense, Aircraft engines, Guided missiles (Surface-to-surface)

A discussion of the need for: (1) an application of analytic techniques to military problems; and (2) an understanding of these techniques by military officers. The Memorandum defines systems analysis, describes its essential features, illustrates the process of analysis, points out its virtues and limi-

tations, and concludes with remarks about its future. (Author)

AD-624 495 Fld. 15/7
CFSTI Prices: HC $2.00 MF $0.50
RAND CORP SANTA MONICA CALIF
LIN PIAO ON 'PEOPLE'S WAR': CHINA TAKES A SECOND LOOK AT VIETNAM,
by D. P. Mozingo, and T. W. Robinson. Nov 65, 31p. Rept. no. rm-4814-PR
Contract AF49 (638)-700

Unclassified report

Descriptors: (*Vietnam, China), Communists, United States, Warfare, Strategic warfare, History

An interpretation of Chinese Communist policy on the Vietnam war according to Lin Piao's article of 3 September 1965, 'Long live the victory of people's war.' The article reveals that Peking, since U. S. intervention in Vietnam, has come to the following conclusions: (1) that the Viet Cong should treat the war as a full-fledged national war of resistance against U. S. imperialist invasion; (2) that they should substitute a united front strategy, abandon mobile warfare, and go over to strategic defense; and (3) that they should primarily rely on their own resources and revolutionary spirit. The authors find that Peking feels the successful outcome of the war will ultimately turn on the global defeat of the U. S.; that the United States intends to turn South Vietnam into a colony; and that it is preferable to wage a war against the U. S. by proxy of the Vietnamese nation than by a direct confrontation. (Author)

AD-624 797 Fld. 15/7
CFSTI Prices: HC $3.00 MF $0.50
RAND CORP SANTA MONICA CALIF
SOVIET MILITARY THEORY: AN ADDITIONAL SOURCE OF INSIGHT INTO ITS DEVELOPMENT,
by Thomas W. Wolfe. Nov 65, 52p. Rept. no. P-3258
TT 65-64796

Unclassified report

Descriptors: (*Military strategy, USSR), (*USSR, Military strategy), Armed forces (Foreign), Strategic warfare, Analysis

Contents: Strategic Warfare; a) leading role of the strategic missile forces, b) influence of strategic operations on the length of a war, c) target systems for strategic forces, d) the factors of surprise and chance in modern war, e) theater warfare and local war, f) reaction against new missile 'Orthodoxy', Stages in the Postwar Development of Soviet Military Theory; Relationship Between Politics and Military Theory; a) scope of military science, b) new typology of soviet military theory; Principles of War.

AD-624 470 See Fld. 14/5

AD-624 632 See Fld. 22/3

AD-624 685 See Fld. 1/3

16/1. MISSILE LAUNCHING AND GROUND SUPPORT

AD-624 618 Fld. 16/1, 12/2
CFSTI Prices: HC $6.00 MF $1.25
STANFORD UNIV CALIF DEPT OF AERONAUTICS AND ASTRONAUTICS
ON THE BOUNDED CONTROL OF SOME UNSTABLE MECHANICAL SYSTEMS,
by John F. Schaefer. Apr 65, 235p. Rept. no. sudaer-223
Contract NSF-GP-1550

Unclassified report

Descriptors: (*Adaptive control systems, Rockets), Dynamics, Synthesis, Equations of motion, Mathematical models, Flexible structures, Guided missiles, Launching

This dissertation considers the control and controllability of certain mechanical systems which are inherently unstable. A potential area of application is to the control of rocket vehicles in their launch phase. The majority of effort is directed toward synthesizing control laws for bang-bang controllers--those having only two outputs symmetric about zero. Within the general area, two separate investigations are conducted, and for this reason, the report is in two parts. Part 1 considers the synthesis and application of controls for a class of dynamical systems of arbitrarily high order. A slender, flexible missile is describable by the equations of motion of the subject class. Two separate control laws are derived, one a linear and one a nonlinear function of the plant outputs. Part 2 concerns the adaptive control of a specific fourth-order time-varying mechanical system. Again, potential applications include a rocket vehicle--in this case, one whose center of mass or center of aerodynamic pressure is varying with time. Two different adaptive control processes are formulated in response to two separate problem statements. The feasibility of both techniques is indicated by analog computer simulations. The second process, a 'dual-mode' adaptive scheme, is shown to be able to match the perfect controller in maximizing the range of controllable initial conditions, regardless of the value of the single unknown parameter.

AD-624 523 See Fld. 22/4

16/2. MISSILE TRAJECTORIES

AD-624 321 Fld. 16/2, 9/2
CFSTI Prices: HC $1.00 MF $0.50
LOCKHEED MISSILES AND SPACE CO PALO ALTO CALIF
A SIMPLIFIED METHOD OF PRELIMINARY DESIGN DRAG ESTIMATES FOR BALLISTIC MISSILES.
Technical memo.,
by H. M. Bowers. May 61, 10p. Rept. no. lmsd-505445 ,TM-57-11-06

Unclassified report

Descriptors: (*Drag, Guided missiles (Surface-tosurface)), (*Guided missiles (Surface-to-surface), Drag), Approximation (Mathematics), Programming (Computers), Skin friction, Design

A simplified method has been established for making and programming engineering approximations of drag coefficient curves which are used in calculating ballistic missile trajectories. Drag estimates normally require a day or more to establish the variation over the required Mach number range. To reduce this time element and thus accelerate preliminary design studies, the simplified technique described herein provides, for most configurations a method for estimating in one half hour or less, the complete drag input information as required for a digital computer. (Author)

16/4. MISSILES

AD-624 461 Fld. 16/4, 5/9
CFSTI Prices: HC $1.00 MF $0.50
RAND CORP SANTA MONICA CALIF
THE MINUTEMAN MISSILE SYSTEM,
by Sidney H. Miller. Dec 65, 19p. Rept. no. p-3271

Unclassified report

Descriptors: (*Guided missiles (Surface-to-Surface), State-of-the-art reviews), Weapon systems, Instruction manuals, Education, Instructors

This work was prepared as a talk to the sixth grade of the Beverly Vista School (Beverly Hills Unified School District) to supplement their science study of rockets and missiles. It is part of the Beverly Vista School effort to tap 'parent resources' in order to enrich the school program.

AD-624 746 See Fld. 14/2

17/2. COMMUNICATIONS

AD-624 654 Fld. 17/2, 4/1, 9/5, 14/2
CFSTI Prices: HC $3.00 MF $0.75
NEW HAMPSHIRE UNIV DURHAM
THE DESIGN OF AN IMPROVED RECEIVER FOR ROCKET EXPERIMENTS.
Master's thesis,
by Frank David Szachta. Aug 65, 74p. Contract AF33 (608)-1256

Unclassified report

Descriptors: (*Radio receivers, Sounding rockets), (*Atmospheric sounding, Ionosphere), Ionospheric propagation, Rocket antennas, Dipole antennas, Oscillators, Mixers (Electronic), Radio interference, Intermediate frequency, Bandwidth, Reliability (Electronics), Electron density, Magneto-optic effect

In an ionospheric sounding experiment employing the Nike-Apache rocket electron density and collison frequency in the lower ionosphere are studied by means of rocket receiver signal frequency and strength as the rocket penetrates the ionosphere. The receiver used is an amplitude-modulated superheterodyne unit capable of receiving a signal strength of 5 microvolts/meter and amplifying it to a 5 volt level for the telemetry unit input. The problems encountered in this receiver are considered. They are: Oscillator injection voltage amplitude into the mixer unit in very critical, causing the mixer to be unreliable; The intermediate frequency strip develops spurious oscillators; Present receiver bandwidth of 10 kc. is too wide since broadcast land signals cause interference during test.

AD-624 669 Fld. 17/2, 9/5
CFSTI Prices: HC $2.00 MF $0.50
ARKANSAS UNIV FAYETTEVILLE
A MICROWAVE RADIO RELAY SYSTEM.
Master's thesis,
by Howard Edward King. 1966, 37p. Contract AF33 (608)-1206

Unclassified report

Descriptors: (*Microwave relay systems, Design), Antennas, Coaxial cables, Radio transmitters, Radio receivers, Klystrons, Channel selectors, Multiplex

A microwave radio relay system is a communications system whereby information is transmitted from one location to another via radio frequency energy. The installation and testing of such a system on the University of Arkansas campus between the Science Engineering Building and the Engineering Building is discussed. The system has been installed and tested for proper operation.

AD-624 696 Fld. 17/2, 20/6
CFSTI Prices: HC $1.00 MF $0.50
IIT RESEARCH INST CHICAGO ILL
CONTINUOUS FACSIMILE SCANNER EMPLOYING FIBER OPTICS.
Quarterly rept. no. 4, 1 Apr-30 Jun 65,
by Donald A. Pontarelli. 24 Nov 65, 21p. Rept. no. iitri-A6093-12
Contract DA-28-043-AMC-00164 (E) Proj. 1ITRI-A6093 Task 1E6-34301-D246-03-02

Unclassified report

See also AD-623 204.

Descriptors: (*Fiber optics, Facsimile equipment), (*Facsimile equipment, Fiber optics), (*Scanning, Fiber optics), Recording paper, Photographic paper, Surface properties, Glass, Rods, Photoelectric cells (Semiconductor)

Photometric imperfections occurring in copy exposed through a fiber sheet were reduced by use of bulk glass rods whose surface had been ground and polished to an optical finish. Evaluation of the linearity, temperature characteristics, and sensitivity of a number of light detectors resulted in selection of a type considered best choice for use in the facsimile scanner. Prototype of scanner assembled and functioned satisfactorily except for minor variations in speed of the copy feed belt. (Author)

AD-624 743 Fld. 17/2, 17/2.1
CFSTI Prices: HC $4.00 MF $0.75
AEROSPACE TECHNOLOGY DIV LIBRARY OF CONGRESS WASHINGTON D C
COMMUNICATIONS NETWORKS. PART I. REVIEW OF SOVIET LITERATURE,
10 Sep 65, 129p. Rept. no. ATD-P-65-71 TT 65-64785

Unclassified report

Descriptors: (*Communication systems, USSR), (*Communication equipment, USSR), Telephone communication systems, Radio communication systems, Facsimile communication systems, Electronic technicians, State-of-the-art reviews, Bibliographies

AD-624 755 Fld. 17/2
CFSTI Prices: HC $1.00 MF $0.50
NAVAL SUBMARINE MEDICAL CENTER GROTON CONN
FREQUENCY-RESPONSE CHARACTERISTICS OF AN IMPROVED TRANSISTORIZED MILITARIZED INTERCOM SYSTEM PROPOSED BY THE USN UNDERWATER SOUND LABORATORY FOR USE IN MAINTENANCE AND TESTING OF THE AN/BQS-6 SONAR SYSTEM.
Special rept.,
by J. Donald Harris. 24 Sep 65, 10p. Proj. MF-022.03.03-9007 NAVMED MF022-03-03-9007-20

Unclassified report

Descriptors: (*Intercommunication systems, Speech transmission), Naval equipment, Transistors, Maintenance equipment, Test equipment, Sonar equipment, Performance (Engineering), Signal-tonoise ratio

An investigation was made to determine whether the speech-transmission characteristics of an improved transistorized version of the Raytheon Co.'s LS-503/BQS6B intercommunication system would equal the performance characteristics of the non-militarized system found satisfactory in USN Submarine Medical Center Special Report No. 65-2. At the most favorable settings for speech communications in the Master Slave station mode, frequency passband was 490-4000, harmonic distortion, at 1000 cycles/ sec was 14 per cent, the roll-off below the maximum at 1500 cycles/sec was 20 db per octave, and the maximum signal to noise ratio, at 1500 cycles/sec, was 40 db. In the Slave-Master mode, performance was equally good except that harmonic distortion was excessively high at 40 per cent. The low frequency slope, which reduces the masking effect of intense low frequency ambient sounds as well as system resonance at 200 cycles/sec, renders this improved militarized variation satisfactory for sonar maintenance and component testing of subject system. (Author)

AD-624 821 Fld. 17/2, 17/2.1
CFSTI Prices: HC $3.00 MF $0.75
AEROSPACE TECHNOLOGY DIV LIBRARY OF CONGRESS WASHINGTON D C
COMMUNICATIONS NETWORKS. PART II. DESIGNATIONS AND ABBREVIATIONS,
by Karol Milobedski. 10 Sep 65, 62p. Rept. no. ATD-P-65-72 ,5 TT 65-64798

Unclassified report

Rept. on Surveys of Soviet Scientific and Technical Literature. See also AD-624 743.

Descriptors: (*Communication equipment, USSR), (*Communication systems, USSR), Specifications, Documentation, Electrical engineering, State-of-theart reviews

AD-624 255 **See Fld. 9/4**

AD-624 256 **See Fld. 5/10**

AD-624 297 **See Fld. 9/1**

AD-624 785 **See Fld. 9/4**

17/2.1 RADIO COMMUNICATIONS

AD-624 643 Fld. 17/2.1, 22/2
CFSTI Prices: HC $2.00 MF $0.50
WESTERN DEVELOPMENT LABS PHILCO CORP PALO ALTO CALIF
SATELLITE COMMUNICATION CONTROL FACILITY.
Quarterly progress rept. no. 1, 17 May-31 Aug 65.
8 Oct 65, 43p. Rept. no. wdl-TR-2684
Contract DA-28-043-AMC-01379 (S)

Unclassified report

Descriptors: (*Satellite networks, Communication systems), (*Communication systems, Satellite networks), (*Management planning, Communication systems), (*Communication satellites (Active), Systems engineering), Military requirements, Communication satellites (Passive), Command + control systems, Construction, Scheduling, Training

Satellite Communication Control Facility (SCCF) Project provides a means for scheduling the Initial Defense Communication Satellite Program (DCSP) Facilities and resources, using manual techniques. The project includes the development of scheduling techniques, determination of the interfaces, development of operating procedures, and the delivery of the SCCF together with a trained schedule-control team of government personnel.

AD-624 678 Fld. 17/2.1, 22/2, 5/3, 5/4
CFSTI Prices: HC $3.00 MF $0.75
GEORGE WASHINGTON UNIV WASHINGTON D C
AN ANALYSIS TO DETERMINE IF THE DEPARTMENT OF DEFENSE SHOULD OWN OR LEASE COMMUNICATIONS SATELLITES.
Master's thesis,
by Donald Louis Steelman. Sep 65, 75p. Contract AF33 (608)-1232

Unclassified report

Descriptors: (*Department of Defenses, Space communication systems), (*Communication satellites (Active), Department of Defense), (*Communication satellites (Passive), Department of Defense), Economics, Political science, Defense systems, Commerce

AD-624 697 Fld. 17/2.1
CFSTI Prices: HC $1.00 MF $0.50
RADIO CORP OF AMERICA CAMDEN N J COMMUNICATIONS SYSTEMS DIV
DESIGN, DEVELOPMENT, AND FABRICATION OF THE HIGH-FREQUENCY SINGLE-SIDEBAND TRANSCEIVER AN/ARC-104 (V).
Interim engineering rept. no. 6, 1 Aug-31 Oct 65. 31 Oct 65, 20p. Rept. no. cr-65-591-7 ,1000F
Contract NOw-62-1084-d

Unclassified report

Descriptors: (*Transmitter-receivers, Single sideband communication systems), High frequency, Tests, Performance (Engineering), Design, Antenna components, Compatibility

Prototype accomplishments during the report period are provided. A program schedule showing expected deliveries of contract items is included. Assembly and checkout continued. Preliminary RFI, temperature, shock, vibration, and explosive decompression tests were completed. Antenna Coupler compatibility was established. (Author)

AD-624 710 Fld. 17/2.1
CFSTI Prices: HC $1.00 MF $0.50
ARMY ELECTRONICS COMMAND FORT MONMOUTH N J
SEACORE, SOUTHEAST ASIA COMMUNICATIONS RESEARCH.
Semi-annual rept. no. 5, 1 Aug 64-31 Jan 65. Jan 65, 21p. Contract arpa order-371

Unclassified report

Descriptors: (*Communication systems, Southeast Asia), (*Radio transmission, Southeast Asia), Radio waves, Propagation, Tropical regions, Armed forces operations, Communication equipment, Maintainability, Environmental tests, Thailand, Armed forces research

Some of SEACORE objectives are as follows: Field tests shall be conducted in Thailand to obtain basic propagation data in the different tropical environments; the different types of tropical environment shall be identified in relation to the electromagnetic properties; the technical difficulties shall be identified which are detrimental to military communications in the tropical environment; equipment, techniques and new ideas shall be tested in the tropical environment as directed; survey, analyze and evaluate the capacity, reliability, and physical and tactical limitations of existing communications equipments and techniques; and state equipment requirements to accomplish the task of jungle field communications based upon existing and anticipated tactical requirements, including requirements for development items, as determined by preceeding efforts.

AD-624 859 Fld. 17/2.1, 20/14
CFSTI Prices: HC $1.00 MF $0.50
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
METHOD OF SHORT-WAVE RADIO COMMUNICATION THROUGH THE POLAR ZONE,
by K. M. Kosikov, and Yu. A. Chernov. 9 Nov 65, 7p. Rept. no. ftd-TT-65-819 TT 65-64800

Unclassified report

Unedited rough draft trans. of Patent (USSR) 165 781, appl. no. 812538/26-9, 4 Jan 63.

Descriptors: (*Radio transmission, Polar regions), Radio communication systems, Radio waves, Ionospheric propagation, Multipath transmission, Multiplex, Radio reception, Antennas, USSR, Patents

The method utilizer at the point of arrival, duplex or triplex radio reception with a combination of signals or automatic selection of the optimum signal of the separate channels. For the purpose of improving the stability of the radio communication the maximum of the diagram of directionality of the receiving antennas is oriented with a deviation from the azimuth within limits up to 120 degrees.

AD-624 253 **See Fld. 20/14**

AD-624 628 **See Fld. 20/14**

AD-624 743 **See Fld. 17/2**

AD-624 821 **See Fld. 17/2**

17/7. NAVIGATION AND GUIDANCE

AD-624 454 Fld. 17/7, 20/1, 8/10
CFSTI Prices: HC $1.00 MF $0.50
NAVAL RESEARCH LAB WASHINGTON D C
AN ACOUSTIC RAY SHIP POSITIONING AND TRACKING SYSTEM.
Interim rept.,

by H. N. Van Ness, R. L. Mills, and K. R. Stewart. 12 Oct 65, 19p. Rept. no. nrl-6326
Proj. RF-001-03-46-4205

Unclassified report

Descriptors: (*Position finding, Underwater sound equipment), (*Underwater sound equipment, Position finding), (*Hydrographic surveying, Underwater sound equipment), (*Underwater tracking, Underwater sound equipment), Acoustics, Underwater sound, Sound transmission, Echo ranging, Navigation computers, Oceanographic equipment, Depth finding, Underwater navigation

A ship positioning and underwater tracking system for general oceanographic work has been developed at the U. S. Naval Research Laboratory. The positioning and tracking is accomplished by measuring the length of acoustic rays emitted by a single sound source and received by three ship-mounted hydrophones. The ray lengths are independent variables in a set of tracking equations. The sound source is an acoustic transponder. The transponder, which is moored to the ocean bottom or attached to an underwater vehicle, transmits when interrogated acoustically from the ship. A small general purpose digital computer is programmed with the solutions to the tracking equations. The computer also controls and monitors the auxiliary equipment which makes up the entire system. This tracking system was installed aboard the USNS MIZAR in the spring of 1964. It was used in the North Atlantic Ocean during the summer and fall of 1964 and the winter of 1964-1965. (Author)

AD-624 661 Fld. 17/7
CFSTI Prices: HC $2.00 MF $0.50
STANFORD UNIV CALIF
OPTICAL FLAT PLACEMENT ON ALMOST SPHERICAL GYRO ROTORS.
Master's thesis,
by Robert Victor Plank. Aug 65, 41p. Contract AF33 (608)-1278

Unclassified report

Descriptors: (*Gyroscopes, Optical equipment), (*Optical equipment, Gyroscopes), Equations of motion, Dynamics, Optical scanning, Inertial navigation, Inertial guidance

This thesis discusses a technique of precise placement of an optical flat on an almost spherical gyro rotor. An initial flat is placed near the minimum axis of inertia of a sphere. The flat is replaced by successive polishing operations until the minimum axis becomes the maximum axis and a desired alignment of the flat, approximately perpendicular, with the maximum axis is achieved. (Author)

AD-624 467 **See Fld. 22/3**

AD-624 478 **See Fld. 9/5**

AD-624 479 **See Fld. 22/1**

AD-624 592 **See Fld. 22/2**

AD-624 616 **See Fld. 1/2**

AD-624 746 **See Fld. 14/2**

17/9. RADAR DETECTION

AD-624 440 Fld. 17/9, 20/14
CFSTI Prices: HC $2.00 MF $0.50
COSMIC INC WASHINGTON D C
RADAR SCATTERING FROM SATELLITE WAKES.
Final rept.,
by John J. Shea. Oct 65, 44p. Rept. no. cosmic-96
Contract AF30 (602)-3678 Proj. AF-5579 Task 557902
RADC TR-65-283

Unclassified report

Descriptors: (*Satellites (Artificial), Ionization trails), (*Ionization trails, Radar reflections), (*Radar echo areas, Ionization trails), Spectrum signatures, Radar signals, Backscattering, Plasma physics, Radar tracking, Satellite tracking systems

A satellite traversing its ionized ambient surroundings possesses an elongated wake. The objective of the effort reported has been to verify that this wake region has a radar cross-section large compared to the geometrical cross-section of the satellite itself. A detailed method is established for this calculation, and by carrying out the calculation for representative conditions, the enhancement is shown possible. (Author)

AD-624 586 Fld. 17/9, 20/14
CFSTI Prices: HC $3.00 MF $0.75
NORAIR DIV NORTHROP CORP HAWTHORNE CALIF
A SOURCE DISTRIBUTION TECHNIQUE FOR THE SOLUTION OF GENERAL ELECTROMAGNETIC SCATTERING PROBLEMS. PHASE I REPORT,
by Fred K. Oshiro, and Charles W. Su. 13 Oct 65, 67p. Rept. no. nor-65-271
Contract AF33 (615)-3166

Unclassified report

Descriptors: (*Radar echo areas, Numerical analysis), (*Electromagnetic waves, Scattering), Diffraction, Radar signals, Ranges (Distance), Radar targets, Radar reflections, Spectrum signatures, Geometric forms, Integral equations, Optics

The Source Distribution Technique ('SDT') embodies a comparatively simple and unrestricted computational method applicable to the complex problem of scattering from arbitrarily shaped geometries. The procedure exhibits a greater degree of flexibility and accuracy than present day approximation techniques. It is a numerical procedure for determination of the radar cross section for complex targets, based on an integral equation approach. It can be employed to determine the electromagnetic scattering from arbitrarily shaped two-and-threedimensional geometries in the difficult resonant frequency ranges in which classical solutions are not available. Combined with the Norair Physical Optics procedure the 'SDT' can be employed to determine the electromagnetic scattering of a variety of shapes, including large scattering objects; i.e. > 2 lambda. Verification of the technique was performed on the Norair radar reflectivity range. An image-plane was utilized to measure the current distribution and scattered fields. A brief outline of the basic procedure is described together with a few examples to demonstrate its validity. (Author)

AD-624 630 Fld. 17/9, 20/14
PENNSYLVANIA STATE UNIV UNIVERSITY PARK ORDNANCE RESEARCH LAB
MONOPULSE RADAR TRACKING TECHNIQUES,
Revised ed.,
by G. Adomian. 25 Mar 65, 4p. Contract AF33 (616)-3132

Unclassified report

Availability: Published in IEEE transactions on military electronics V MIL-9 nos. 3, 4 P293-4 Jul-Oct 1965. Revision of manuscript received 2 Jul 64. Copies to DDC users only.

Descriptors: (*Monopulse radar, Radar tracking), (*Radar tracking, Monopulse radar), Radar equipment, Radar signals, Radar reflections, Radar clutter, Electronics, Engineering

Earlier comprehensive studies are summarized and a qualitative discussion is given of work on advanced angle tracking techniques incorporating monopulse antennas. These systems use a single i-f amplifier with time or frequency duplexing rather than two or three receiver channels as in a conventional monopulse system and offer some unique advantages. A series of comparative studies have been made of tracking noise and clutter considerations, performance in interference, and compatibility with various proposed operating modes. Quantitative theoretical results for closed loop performance under a variety of operating conditions and system parameters were obtained and verified by means of experiment and simulator results. The effects of various randomization schemes, lobing rates, and tactics were studied with a view to finding desirable parameters under various conditions. Finally, a detailed analysis was made of the processing of the target signal to verify techniques developed for hardware from antenna feed through detector. Effects of perturbations in design were explored leading to specifications on tolerable errors in various components. (Author)

AD-624 304 **See Fld. 9/5**

AD-624 476 **See Fld. 22/3**

AD-624 494 **See Fld. 5/8**

AD-624 581 **See Fld. 22/1**

AD-624 605 **See Fld. 20/14**

AD-624 733 **See Fld. 20/14**

18/2. ISOTOPES

AD-624 365 **See Fld. 8/1**

AD-624 366 **See Fld. 8/1**

18/3. NUCLEAR EXPLOSIONS

AD-624 496 Fld. 18/3, 4/2
CFSTI Prices: HC $2.00 MF $0.50
WEATHER BUREAU RESEARCH STATION LAS VEGAS NEV
WEATHER AND SURFACE RADIATION PREDICTION ACTIVITIES.
Final rept.
Aug 65, 41p. ARPA VUF-1020,TID 4500-46TH ED.

Unclassified report

Rept. on Proj. DRIBBLE, SALMON EVENT, Tatum Salt Dome, Miss., 22 Oct 64.

Descriptors: (*Nuclear explosions, Weather forecasting), (*Weather forecasting, Nuclear explosions), Meteorological phenomena, Radioactive fallout

The Weather Bureau provided weather planning and prediction for the radiological safety program of the Salmon event, Project Dribble. Observations of winds and weather conditions at the site began 20 months prior to the event. Wind and temperature soundings and weather and radioactivity forecasting facilities were added during the detonation and post-event drilling phases. The winds during the 4 weeks following the Ready date were sufficiently abnormal in direction and speed that the planned firing criteria were not met, resulting in delays and changes in criteria to accept a wider range of conditions. (Author)

AD-624 522 Fld. 18/3
CFSTI Prices: HC $5.00 MF $1.00
BEERS (ROLAND F) INC ALEXANDRIA VA
ANALYSIS OF GROUND MOTION AND CONTAINMENT.
Final rept.
26 Aug 65, 175p. Contract AT (29-2)-1163
ARPA VUF-1026,TID 4500- 45TH ED.

Unclassified report

Rept. on Proj. DRIBBLE, SALMON EVENT, Tatum Salt Dome, Miss., 22 Oct 64.

Descriptors: (*Nuclear explosions, Underground explosions), (*Underground explosions, Containment), Seismology, Earth, Motion, Mississippi, Hydrology, Explosion effects

Predictions and evaluations of ground motion, stemming, containment and physical effects of ground motion on subsurface facilities and aquifers were made for the Salmon event. These predictions have been compared with observed data where available. The prediction of containment and the evaluation of the adequacy of the stemming plan were substantiated by the test results. Available post-shot data permits the following quantitative comparisons: Cavity radius 19 meters predicted, 16.8 meters observed; cracking radius 58 meters predicted, 45-60 meters observed; radioactive crack radius 46 meters predicted, 37 meters observed; depth of spall 10 meters predicted, 12 meters observed; vertical displacement of spall 0.14 meters predicted, 0.1 meters observed.

AD-624 529 Fld. 18/3
CFSTI Prices: HC $3.00 MF $0.75
ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG MISS
LABORATORY DESIGN, ANALYSIS, AND FIELD CONTROL OF GROUTING MIXTURES EMPLOYED AT A NUCLEAR TEST IN SALT.
Final rept.,
by James M. Polatty, and Ralph A. Bendinelli.
May 65, 93p. ARPA VUF-3019,TID 4500-45TH ED.
Unclassified report

Rept. on Proj. DRIBBLE, SALMON EVENT, Tatum Salt Dome, Miss., 22 Oct 64.

Descriptors: (*Nuclear explosions, Underground explosions), (*Underground explosions, Preparation), Instrumentation, Encapsulation, Underground structures

In the Project DRIBBLE Salmon Event a 5-kt nuclear device was detonated near the bottom of a 2,720-footdeep hole drilled vertically into a salt dome in Mississippi. The report describes work by the U. S. Army Engineer Waterways Experiment Station in (1) furnishing grouting consultant services and technical assistance in the field during grouting operations, (2) conducting stemming studies for the device emplacement hole, (3) developing formation-matching grouts for use in grouting instruments in place in deep drilled holes, (4) providing instruments for hole temperature determinations, and (5) making physical tests on salt cores from the project site. Based on the results of this investigation, the following conclusions are made. 1. Grout mixtures were successfully developed to meet all job requirements. 2. With the exception of one hole, all instrument holes were successfully grouted. 3. The stemming operation for the device hole was highly successful in all respects. 4. Modifications and the addition of supplemental mixing equipment to the grouting systems considerably improved the quality control of the grout mixture. This improved quality control is believed to have been largely responsible for the successful grouting of the device and instrument holes.

AD-624 547 **See Fld. 8/11**

AD-624 701 **See Fld. 15/3**

AD-624 702 **See Fld. 15/3**

AD-624 703 **See Fld. 15/3**

AD-624 704 **See Fld. 15/3**

AD-624 857 **See Fld. 18/4**

18/4. NUCLEAR INSTRUMENTATION

AD-624 516 Fld. 18/4, 18/8, 6/18
CFSTI Prices: HC $2.00 MF $0.50
ARMY MEDICAL LAB (5TH) ST LOUIS MO
SAMPLING PROGRAM FOR AIRBORNE RADIOACTIVITY,
by Donald R. Bowie. 31 Jan 65, 30p. Rept. no. rb-65-1
Unclassified report

Descriptors: (*Radioactivity, Samplets), (*Radioactive fallout, Air pollution), (*Samplers, Radiation measurement systems), Airborne

The basic program involves the collection of particulate matter from a known volume of air. The collector is a high volume sampler equipped with a glass fiber filter. The gross beta radiation emitted by a known fraction of the sample is measured in an appropriate instrument, and the concentration is calculated for the sampling period.

AD-624 599 Fld. 18/4
CFSTI Prices: HC $1.00 MF $0.50
ARMY ELECTRONICS COMMAND FORT MONMOUTH NJ
A GEIGER-MULLER SURVEY METER WITH ADDED RANGE AND SAFETY.
Technical rept.,
by Basil Markow. Aug 65, 13p. Rept. no. ecom-2624
Proj. DA-1P0-14501-B11A Task 1P0-14501-B11A-00
Unclassified report

Descriptors: (*Radiation measurement systems, Laboratory equipment), Performance (Engineering), Safety devices

A newly designed Geiger-Muller survey meter indicates when the instrument is swamped and adds an additional high range. (Author)

AD-624 857 Fld. 18/4, 18/3
CFSTI Prices: HC $3.00 MF $0.75
ZIMNEY CORP MONROVIA CALIF
HYDRA PROGRAM, A SHORT-RANGE TELEMETERING ROCKET FOR MEASUREMENT OF UNDERWATERNUCLEAR-BURST PLUME RADIATION.
Final rept.,
by E. W. Irre, K. M. King, B. R. Walker, and L. E. Egeberg. 23 Aug 65, 63p. Contract N228 (62479)-59902 USNRDL TR-914
Unclassified report

Descriptors: (*Nuclear explosions, Radiation measurement systems), (*Radiation measxrement systems, Nuclear explosions), Underwater explosions, Atomic clouds, Sounding rockets, Telemeter systems

An instrument system was developed for the measurement of beta and gamma radiation fields in and adjacent to the water column and plumes ejected into the atmosphere by an underwater nuclear explosion. The system consists of a rocket with payload so fired that it traverses the area of interest in a near-vertical trajectory at the proper time. The payload consists of two gamma and one beta radiation transducer, an FM-FM multiplex transmitter, and an associated power supply. The rocket motor is a standard Mk. 10, Mod. 6 HVAR fitted with three different sizes of drag cone to achieve the desired trajectories. A zero length launcher is used. A receiving and recording station for the output of the transmitter also was designed. Nine test flights were made, three of which contained payloads. Sufficient trajectory information was obtained from these flights to establish a reasonably accurate set of drag coefficients for the three different sizes of drag cones. This information allows the calculation of trajectory and range for launch elevation angles other than those used in the test flights. (Author)

18/5. NUCLEAR POWER PLANTS

AD-624 370 **See Fld. 13/13**

18/8. RADIOACTIVITY

AD-624 509 Fld. 18/8, 9/1, 20/12
CFSTI Prices: HC $2.00 MF $0.50
HUGHES AIRCRAFT CO NEWPORT BEACH CALIF MICROELECTRONICS DIV
SEMICONDUCTOR DESIGN EFFECTS ON RADIATION RESISTANCE.
Quarterly rept. no. 2, 15 Mar-15 Jun 65,
by Brian D. Gallagher, and Vincent R. Honnold.
Nov 65, 35p. Contract DA-28-043-AMC-00418 (E) Proj. DA-5900.21.830.2301
Unclassified report

See also AD-618 078.

Descriptors: (*Radiation damage, Semiconductor devices), (*Semiconductor devices, Surface properties), (*Surface properties, Semiconductor devices), Transients, Transistors, Solid state physics, Carriers (Semiconductors)

The standard 2N708 geometry transistors and the special structures including the PNP transistor fabrication were completed. The entire set of primary photocurrent measurements were completed under conditions where the radiation pulse was long compared to the minority carrier lifetime of the material. This is in contrast to the non-equilibrium measurements made on a few samples and reported during the first quarter. Numerical results are given. Preliminary measurements on bar geometries have proven inconclusive and a repetition of this experiment is planned for the next quarter. The equations describing the steady-state distribution of excess carriers previously derived are further expanded. (Author)

AD-624 559 Fld. 18/8, 9/5, 9/2
CFSTI Prices: HC $2.00 MF $0.50
HUGHES AIRCRAFT CO FULLERTON CALIF GROUND SYSTEMS GROUP
HYBRID COMPUTATION OF TRANSIENT RADIATION EFFECTS ON ELECTRONICS.
Final rept.,
by J. E. Bell. 1 Mar 65, 46p. Rept. no. hac-FR-65-10-46
Contract AF04 (694)-565
Unclassified report

Descriptors: (*Radiation damage, Mathematical predictions), (*Electronic equipment, Radiation damage), (*Programming (Computers), Mathematical prediction), Amplifiers, Analog-digital computers, Gamma rays

Hybrid computers have been investigated to determine their particular usefulness in TREE prediction programs. Several approaches for using hybrid computers have been investigated and the merits of each compared with all analog or all digital computation. The advantages of analog, digital and hybrid computer applications to one particular problem are discussed. Data are presented for a hybrid solution of the pre-preamplifier prompt gamma radiation response. (Author)

AD-624 787 Fld. 18/8, 11/2, 11/6, 11/9, +
CFSTI Prices: HC $1.00 MF $0.50
RADIATION EFFECTS INFORMATION CENTER COLUMBUS OHIO
RADIATION EFFECTS INFORMATION CENTER MONTHLY ACCESSION LIST. COORDINATE INDEX. PART II, OCTOBER 1, 1965 TO NOVEMBER 30, 1965.
10 Dec 65, 8p.
Unclassified report

See also AD-614 406.

Descriptors: (*Materials, Radiation damage), (*Radiation damage, Materials), (*Indexes, Radiation damage), Subject indexing, Information retrieval, Metals, Alloys, Ceramic materials, Plastics, Physical properties, Space environmental conditions, Nuclear particles, Electromagnetic waves, Electronic equipment, Semiconductors

AD-624 788 Fld. 18/8, 11/6, 11/2, 18/10, +
CFSTI Prices: HC $1.00 MF $0.50
RADIATION EFFECTS INFORMATION CENTER COLUMBUS OHIO
RADIATION EFFECTS INFORMATION CENTER MONTHLY ACCESSION LIST, ABSTRACT NO. 29825 TO 29878, PART I, NOVEMBER 1, 1965 TO NOVEMBER 30, 1965.
10 Dec 65, 25p. Rept. no. reical-93
Contract AF33 (615)-1124
Unclassified report

See also AD-623 640.

Descriptors: (*Materials, Radiation damage), (*Radiation damage, Abstracts), Metals, Reactor fuel elements, Ceramic materials, Organic compounds, Inorganic compounds, Polymers, Plastics, Electronic equipment, Indexes, Semiconductors, Alloys

AD-624 516 **See Fld. 18/4**

AD-624 561 **See Fld. 9/1**

AD-624 750 **See Fld. 11/8**

18/10. REACTOR MATERIALS

AD-624 788 **See Fld. 18/8**

AD-624 801 **See Fld. 20/13**

18/14. SNAP TECHNOLOGY

AD-624 684 Fld. 18/14, 10/3, 22/2
CFSTI Prices: HC $3.00 MF $0.75
MASSACHUSETTS INST OF TECH CAMBRIDGE
A RADIOISOTOPIC POWER SUPPLY FOR THE SUNBLAZER SPACE PROBE.
Master's thesis,
by David R. Perkins. Aug 65, 74p. Contract AF33 (608)-1249
Unclassified report

Descriptors: (*Radioactive batteries, Power supplies), (*Space probes, Radioactive batteries), (*Solar satellites, Space probes), Reactor fuels, Solar sails, Thermoelectricity, Thermal insulation, Plutonium, Electron density, Measurement, Solar corona

A preliminary investigation of the application of a radioisotopic power source in conjunction with the Sunblazer space probe of the M.I.T. Center for Space Research resulted in the design of a 12 watt-electrical power source which weighs 5.16 pounds. The fuel consists of 526 grams of Pu02 dispersed in graphite. The fuel is contained in a capsule made of Haynes-25 Alloy which has been designed to contain the isotope under all possible launch abort conditions. The heat from the isotope is converted to electrical power by passing it through 40 Silicon-Germanium thermoelectric couples. The output of 12 watts is produced at 2.66 volts and an overall efficiency of 5.80%. The radiation of waste heat is accomplished by means of an aluminum radiator which is always directed toward cold space. The probe is oriented by means of solar radiation pressure.

19/1. AMMUNITION, EXPLOSIVES, AND PYROTECHNICS

AD-624 425 Fld. 19/1
CFSTI Prices: HC $2.00 MF $0.50
FRANKFORD ARSENAL PHILADELPHIA PA
QUALIFICATION OF THRUSTER, CARTRIDGE ACTUATED, XM25.
Technical research rept.,
by Roger L. Schultz. Nov 65, 30p. Rept. no. r-1781
Unclassified report

Descriptors: (*Jettisonable cockpits, Explosive actuators), (*Explosive actuators, Design), Jettisonable equipment, Tests, Performance (Engineering), Loading (Mechanics), Cartridges (PAD), Escape systems (Aerospace)

Product improvement of the M20 thruster was performed to prevent premature release of the thruster piston (resulting from shock and impact) and rotation of the piston with respect to the body. The redesigned thruster was designated 'Thruster, Cartridge Actuated, XM25.' The thruster contains the M127 cartridge used in the M20 thruster. The report describes the engineering test program conducted, the results obtained, and an analysis of the results, which shows that all applicable specifications and requirements have been met. Further, it is recommended that this item be standardized and that it replace the M20 thruster. (Author)

AD-624 455 Fld. 19/1, 20/3, 9/1
CFSTI Prices: HC $1.00 MF $0.50
NAVAL WEAPONS LAB DAHLGREN VA
THE PRESENT STATE OF THE NWL RF DISCHARGE INVESTIGATION.
Technical memo.,
by H. A. Schwab. Nov 65, 25p. Rept. no. tm-W-20/65
Unclassified report

Descriptors: (*Electric discharges, Radiofrequency), (*Suppressors, Electric discharges), (*Electromagnetic shielding, Explosives initiators), Gas discharges, Voltage, Electric currents, Rectifiers, Frequency converters, Electric arcs, Ordnance, Hazards, Counter-

Information gained about rf discharges to date is presented. Steady state rf discharges between clean electrodes of the same material were examined. Voltage-current characteristics of these discharges were recorded to gain a knowledge of their general behavior. Some photographs of waveforms obtained by these measurements are presented.

AD-624 537 Fld. 19/1
CFSTI Prices: HC $2.00 MF $0.50
POULTER LABS STANFORD RESEARCH INST MENLO PARK CALIF
SHOCK INITIATION OF LOW-DENSITY PRESSINGS OF AMMONIUM PERCHLORATE,
by Marjorie W. Evans, B. O. Reese, L. B. Seely, and E. L. Lee. Oct 65, 27p. Contract AF49 (638)-1124 AFOSR 65-2261
Unclassified report

Presented at the Symposium on Detonation, (4th) Naval Ordnance Lab., White Oak, Md.

Descriptors: (*Detonations, Shock (Mechanics)), (*Ammonium compounds, Perchlorates), (*Explosive materials, Ammonium compounds), Pellets, Propellants, Pressure, Density, Equations of state, Shock waves, Velocity

Iniation and detonation behavior of 13-micron ammonium perchlorate was studied at loading density 1.00 g/cu. cm. Steady detonation velocities were determined experimentally at three diameters and extrapolated to 3.75 = 0.15 mm/micro sec at infinite diameter. Calculations with the BKW equation of state gave 4.25 mm/micro sec--as good agreement as could be expected for a low-energy chlorine--containing explosive. By introducing 24-kbar flat-topped plane shocks into pellets of various lengths, it was determined that steady full-strength detonation was reached after about 15 mm travel. The growth of pressure in the accelerating wave was followed approximately by means of free-surface measurements on thin Plexiglas at the top surfaces of the pellets, and these measurements indicated the pressure to be 55 = 10 kbar in the full-strength wave. Reducing the air pressure in the pressings to 5 microns left the build-up to detonation unaffected. The position of the shock Hugoniot for the pressings relative to the Hugoniot of the solid crystal is discussed in terms of heat production during collapse and possible reaction processes. (Author)

AD-624 607 Fld. 19/1, 1/3
CFSTI Prices: HC $2.00 MF $0.50
PITMAN-DUNN RESEARCH LABS FRANKFORD ARSENAL PHILADELPHIA PA
A SURVEY OF SOME OF THE RECENT APPLICATIONS OF PYROTECHNICS TO SMALL ARMS AMMUNITION AND MILD DETONATING FUSE SYSTEMS.
Technical research article,
by Winston W. Cavell. 5 Nov 65, 34p. Rept. no. a65-9
Unclassified report

Presented at the American Ordnance Association Military Pyrotechnics Section Meeting, U. S. Naval Postgraduate School, Monterey, Calif., 4-5 Nov 65.

Descriptors: (*Pyrotechnics, Reviews), (*Small arms ammunition, Pyrotechnics), (*Fuzes (Ordnance), Pyrotechnics), (*Jettisonable cockpits, Fuzes (Ordnance)), Delay elements (Explosive), Detonations, Deflagration, Ignition, Explosive materials, Tracers (Ordnance), Boosters

Mild detonating fuse (MDF) applications to aircraft escape systems are presented. The explosive components for MDF systems are discussed. Explosives and pyrotechnics with high stability temperatures are needed to increase the ability of the explosive components to withstand temperatures encountered on aerodynamic heating or in highly ionized media. Desired properties of explosives are listed, and mechanical and thermochemical approaches in designing reliable nonfragmenting MDF systems, utilizing pyrotechnic delays, are discussed. Other MDF topics discussed include transition from detonation to deflagration, delays, and ignition through metal webs (or through bulkhead ignition) from one hermetically sealed MDF system to another hermetically sealed MDF system which requires the use of pyrotechnic delay mixtures. Terminal boosters and their components are discussed. A new method for the laboratory simulation of gun barrel tracer functioning is presented. Several methods of delivering an impact have been investigated. Statistical analysis similar to that used for evaluating impact sensitivity of percussion primers has been applied to evaluate sensitivity results. Preliminary correlation has been established between gun firing data and impact sensitivity. A tracer mixture with high visibility and a new method of tracer projectile charging are presented. (Author)

AD-624 687 Fld. 19/1, 7/4
CFSTI Prices: HC $4.00 MF $0.75
AEROSPACE TECHNOLOGY DIV LIBRARY OF CONGRESS WASHINGTON D C
HIGH EXPLOSIVES, FUZES, AND FUZING MECHANISMS. PART A. CHEMISTRY OF HIGH EXPLOSIVES.
25 Aug 65, 112p. Rept. no. ATD-P-65-65
TT 65-64778
Unclassified report

Report based on Soviet-bloc open source materials for 1963.

Descriptors: (*Explosive materials, State-of-the art reviews), Fuzes (Ordnance), Chemical engineering, Physical properties, Bibliographies, Abstracts, USSR

The report is divided into two parts: Part I is an analysis of data on the subject, and Part II is a compilation of abstracts, annotations, and book exploitations. In Part I an attempt is made to evaluate the material collected for the period analyzed with some comments by the writer. Part II contains 83 abstracts and annotations supplemented by 8 book exploitations. The entries in Part II are arranged alphabetically by author. The entries include indicative annotations with references to

Chemical Abstracts and/or translations, if available. In the absence of Chemical Abstracts or translations, short informative abstracts are given. In some cases, selective abstracts of pertinent portions of the original papers are provided. Main descriptors (key words) and associations, are given for all entries, if available. (Author)

AD-624 311 See Fld. 14/2

19/4. EXPLOSIONS, BALLISTICS, AND ARMOR

AD-624 498 Fld. 19/4
CFSTI Prices: HC $2.00 MF $0.50
NAVAL ORDNANCE LAB WHITE OAK MD UNDERWATER EXPLOSIONS DIV
THE RESISTANCE OF HOLLOW GLASS MODELS TO UNDERWATER EXPLOSIONS AT GREAT DEPTHS. II. SPECIAL CONFIGURATIONS,
by W. H. Faux. 29 Oct 65, 26p. Rept. no. noltr-65-146
Proj. NOL-892/SP
Unclassified report

See also AD-623 650.

Descriptors: (*Spheres, Explosion effects), (*Underwater explosions, Explosion effects), (*Glass, Shock resistance), Model tests, Fracture (Mechanics), Pressure

Hollow glass models were exposed to explosions of one pound charges at several depths in the ocean down to 22,000 ft. Spheres coated with a plastic overlay or with butyl rubber were considerably stronger than bare spheres. Spheres with simple hatches and titanium plug inserts were somewhat weaker than unmodified spheres of slightly thicker glass. A depth-hardening effect was found for toroidal models; results obtained from cylinders were inconclusive. (Author)

AD-624 715 Fld. 19/4
CFSTI Prices: HC $1.00 MF $0.50
INSTITUTE FOR DEFENSE ANALYSES ARLINGTON VA RESEARCH AND ENGINEERING SUPPORT DIV
DECOUPLING ESTIMATES FOR UNDERGROUND EXPLOSIONS.
Research paper,
by B. L. Tucker. Oct 65, 22p. Rept. no. p-204
Contract SD-50 Task T-7
Unclassified report

Descriptors: (*Underground explosions, Damping), Statistical analysis, Soil mechanics, Rock (Geology), Noise

There is a considerable body of data, including all the direct P-Wave data from Project Cowboy, which indicates a decoupling factor of the order of two for a salt cavity compared to tamped alluvium or valley tuff. Cavities in soft rock probably do not decouple at all but increase the seismic signal. An increase in decoupling due to high frequency absorption appears unlikely, but should such an effect exist, decoupling factors would probably still be less than ten. Cavity decoupling may actually increase detectability because of the lower background noise at the higher frequencies produced by the cavity. (Author)

AD-624 738 Fld. 19/4, 6/16
CFSTI Prices: HC $1.00 MF $0.50
NAVAL MEDICAL FIELD RESEARCH LAB CAMP LEJEUNE N C
THE EFFECTS OF TWO TYPES OF BODY ARMOR ON BODY TEMPERATURE.
Interim rept.,
by Philip J. Rasch, Paul C. White Jr., and Robert J. Norton. Nov 65, 21p. Rept. no. vol 15/No. 24
NAVMED MF022-03-04-8001-2
Unclassified report

Descriptors: (*Body armor, Body temperature), (*Body temperature, Body armor), Heat, Physiology, Stress (Physiology), Surface temperatures

The purpose of this study was to determine whether there is a difference in the body heat build-up under the standard Marine Corps upper torso body armor versus the NMFRL lightweight prototype body armor. Twenty young adult Marines made two forced marches of 3 mi each, one with each of the above armors. Mean chest skin temperature under the prototype armor was 2F. less than under the standard armor. No difference was observed in rectal, arm, or abdominal temperatures. (Author)

AD-624 510 See Fld. 14/2

19/6. GUNS

AD-624 311 See Fld. 14/2

AD-624 594 See Fld. 11/8

20/1. ACOUSTICS

AD-624 459 Fld. 20/1
CFSTI Prices: HC $2.00 MF $0.50
NAVAL WEAPONS LAB DAHLGREN VA
ACOUSTIC SPREADING LOSS IN AN INHOMOGENEOUS MEDIUM,
by Peter Ugincius, and Lloyd E. Perkins. Sep 65, 37p. Rept. no. nwl-2003
Task R360FR103/2101/R01101001
Unclassified report

Descriptors: (*Sound transmission, Underwater sound), (*Mathematical models, Sound transmission), Oceans, Heat, Intensity

A set of differential equations is derived for calculating the intensity loss due to geometrical spreading of planar sound rays in an inhomogeneous medium with a continuous index of refraction varying both in depth and horizontally. They are solved numerically for a mathematical model of an ocean with a heat source. Intensity contours are presented for rays in the vicinity of a heat source and a heat sink. The heat sink causes the rays to converge which results in the formation of a caustic. An approximate formula is derived for the point where this caustic originates. (Author)

AD-624 690 Fld. 20/1, 13/10
CFSTI Prices: HC $2.00 MF $0.50
BUREAU OF SHIPS WASHINGTON D C
THEORETICAL AND EXPERIMENTAL INVESTIGATION ON THE AIR- AND BODY-SOUND CONDUCTION FROM A SHIP'S PLATING INTO THE SURROUNDING WATER,
by M. Heckl. Sep 65, 40p. Rept. no. 935
TT 65-64779
Unclassified report

Trans. of Muller-BBN Inc., Munich. Rept. (West Germany) n1178 39p 1965.

Descriptors: (*Ship noise, Sound transmission), (*Sound transmission, Air), (*Ship plates, Sound transmission), Underwater sound, Acoustic insulation, Engine noise, Coolant pumps, Reinforcing materials, Damping, West Germany

It is well known that the noises emanating from a ship into the ambient water are attributable to various causes. Whereas at high travelling speeds, the propeller noises are almost decisive in themselves, at slower cruising rates the noise from the engines become disturbingly perceptible. In principle, these engine noises can occur in three different forms or combinations. In case of sea water cooling pumps and similar equipment, a fluid column (head) is perturbed that is in direct connection with the water. Hence in this case, a direct water sound perturbation is present. In the case of motors, hydraulic equipment, etc., the base is essentially disturbed to cause sound conduction through a solid. The sound conduction is then transferred to the ship's plating and is reflected from there. In the case of ventilators and occasionally also other devices, the sound conduction can also occur through the air: i.e., the generated air sound waves cause the ship's plating to vibrate and accordingly lead to sound reflection in the water. The extensiveness of the sound reflection from a ship into water is investigated if the perturbation results from one of the three mechanisms mentioned above.

AD-624 709 Fld. 20/1, 9/1
CFSTI Prices: HC $2.00 MF $0.50
NAVAL RESEARCH LAB WASHINGTON D C
MEASUREMENTS ON ONE AND TWO LINES OF FREE-FLOODED MAGNETOSTRICTIVE RING TRANSDUCERS.
Memo. rept.,
by J. Chervenak. 28 Oct 65, 44p. Rept. no. nrl-1655
Proj. SF-101-03-18-8047
Unclassified report

Descriptors: (*Acoustics, Underwater), (*Magnetostrictive elements, Transducers), (*Transducers, Magnetostrictive elements), (*Underwater sound equipment, Magnetostrictive elements), Rings, Sonar equipment, Underwater sound generators, Deep submergence

Magnetostrictive ring transducers are rugged and relatively insensitive to hydrostatic pressure when used in a free-flooded condition. Therefore, arrays of this type of transducer are ideally suited for deep submergence applications provided acoustic beam directionality is not required. This report is concerned with measurements made on a single line of free-flooded, coaxially mounted magnetostrictive ring transducers and on two lines of meshed rings arranged to simulate segments of a biplanar array. The data presented shows the importance of spacing and arrangement of transducers in relation to the cancellation of generated acoustic pressures along selected array axes and provides information which will be useful in planning tests on a 30 ring biplanar array. (Author)

AD-624 849 Fld. 20/1
CFSTI Prices: HC $1.00 MF $0.50
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
CONVERTER OF ELECTROMAGNETIC WAVES INTO HYPERSONIC WAVES,
by E. M. Ganapolshii, and A. N. Chernets. 9 Nov 65, 6p. Rept. no. FTD-TT-65-804
TT 65-64805
Unclassified report

Unedited rough draft trans. of Patent (USSR) 164 038, appl. no. 792611/26-9 27 Aug 62.

Descriptors: (*Piezoelectric transducers, Hypersonic characteristics), Patents, USSR, Piezoelectric crystals, Quartz, Waveguides, Electromagnetic waves

The object of the invention is a converter of electromagnetic waves into hypersonic waves designed in the form of a rectangular waveguide with a crystal of piezoquartz in the form of a parallelopiped and a wave of the type H sub 10 which has the distinguishing feature that for the purpose of increasing the efficiency, on the area of the waveguide occupied by the crystal of piezoquartz there is located a retardation (inhibiting system) designed, for example, in the form of a retardation comb the teeth of which are set perpendicular to the wide walls of the waveguide while the tips of the teeth reach to the surface of the crystal of the piezoquarts, and the height of the teeth outside of the area of the location of the piezoquartz smoothly decreases down to zero. (Author)

AD-624 283 See Fld. 13/10

AD-624 287 See Fld. 7/4

AD-624 442 See Fld. 20/11

AD-624 454 See Fld. 17/7

AD-624 567 See Fld. 20/5

AD-624 691 See Fld. 11/6

AD-624 842 See Fld. 12/1

20/2. CRYSTALLOGRAPHY

AD-624 383 Fld. 20/2, 20/11
IIT RESEARCH INST CHICAGO ILL
MECHANICAL RELAXATION OF A POINT DEFECT IN MAGNESIUM OXIDE,
by P. D. Southgate. 10 Feb 65, 4p. Contract DA-ARO (D)-31-124-G641 AROD 4518:2
Unclassified report

Availability: Published in Journal of Applied Physics, V36 N9 P2696-9 Sep 1965. Copies to DDC users only.

Descriptors: (*Crystal lattice defects, Relaxation time), (*Magnesium compounds, Oxides), Color centers, Mechanical properties, Internal friction, Symmetry (Crystallography), Reaction kinetics, Vibration

A center has been observed in MgO which has a (100) symmetry and gives rise to mechanical relaxation with associated activation energy of 0.64 eV. The pre-exponential frequency factor is 1.8 X 10 to the 11th power, an anomalously low value which, it is suggested, indicates that the defect reorientation involves a primarily electronic transition. The center is stable only at high temperatures, decaying to a lower thermal equilibrium value below about 850C. No spin resonance, dielectric loss, or optical absorption associated with the center has been observed, and studies of the effects of various treatments have not allowed the defect to be identified. (Author)

AD-624 435 Fld. 20/2
CFSTI Prices: HC $1.00 MF $0.50
METCALF CHEMICAL LABS BROWN UNIV PROVIDENCE R I
X-RAY STUDIES OF SIMPLE CRYSTALS.
Final rept. 1 Sep 51-30 Nov 64,
by Gene B. Carpenter. 15 Nov 65, 9p. Contract Nonr-562 (04) Proj. NR-017-607
Unclassified report

Descriptors: (*Crystals, X-ray diffraction analysis), (*X-ray diffraction analysis, Crystals), Crystal structure, Molecular properties, Isocyanic acid, Cyanogen, Chlorides, Alkynes, Hydrogen compounds, Hydrates, Perchloric acid, Iodine compounds, Sodium compounds, Bromides, Boron compounds, Fluorides, Cesium compounds, Nitrites, Copper compounds, Ketones

An investigation was made of the crystal structures of certain simple hydrogen-bonded systems which are crystalline only below room temperature. The scope of the study widened to include other kinds of weak intermolecular forces as well as hydrogen bonds, and to include a few crystals with melting points above room temperature.

AD-624 596 Fld. 20/2, 20/5
CFSTI Prices: HC $1.00 MF $0.50
LINDE DIV UNION CARBIDE CORP INDIANAPOLIS IND
YAG CRYSTALS.
Quarterly rept. no. 1, 1 Jun-31 Aug 65,
by Howard M. Dess. 31 Aug 65, 21p. Contract DA-28-043-AMC-01373 (E) Proj. 1P6-22001A056
Unclassified report

Descriptors: (*Garnet, Crystals), (*Crystals, Lasers), Crystal growth, Yttrium compounds, Aluminum compounds, Doping, Neodynium, Crystal lattices, Optical properties, Scattering

A total of twelve yttrium aluminum garnet crystals have been grown and delivered in accordance with the schedule outlined in the Contract. These crystals are representative of the quality achievable with the presently utilized growth procedure. Furthermore, they are meant to provide a base line for comparison with crystals to be produced in the near future via improved techniques. Evaluation test results revealed that all of the crystals possessed a central core region regardless of growth orientation or Nd-dopant level. The size and shape of the core are the major determinants of quality in the as-grown crystals. The <111> growth direction was found to give the tightest core and therefore the highest optical quality crystals. (Author)

AD-624 639 Fld. 20/2
BATTELLE MEMORIAL INST COLUMBUS OHIO METAL SCIENCE GROUP
THE STRUCTURE OF EXPLOSIVELY SHOCKED MGO CRYSTALS.
Revised ed.,
by Mark J. Klein. 22 May 65, 5p. Contract DA-ARO (D)-31-124-G605 AROD 4434:3
Unclassified report

Availability: Published in Philosophical Magazine V12 N118 P735-9 Oct 1965. Revision of manuscript submitted 9 Mar 65. Copies to DDC users only.

Descriptors: (*Magnesium compounds, Monoxides), (*Single crystals, Shock (Mechanics)), Shock waves, Crystal lattice defects, Microstructure, Strain (Mechanics), Fracture (Mechanics), Deformation, Explosion effects

The structure of MgO single crystals subjected to plane shock waves was studied for a number of explosive shocking geometries. The density of dislocation slip bands was found to be more than an order of magnitude greater for certain of these crystals than for crystals deformed to the same permanent strain in slow compression. In addition, the order of events during shock loading appears to be shock-induced slip followed by cracking. The experimental results show that the structure, strain, and cracking induced in the shock-loaded crystals is related to the explosive shocking geometry. (Author)

AD-624 823 Fld. 20/2
CFSTI Prices: HC $1.00 MF $0.50
GEORGIA INST OF TECH ATLANTA ENGINEERING EXPERIMENT STATION
X-RAY DIFFRACTION STUDIES OF THERMAL MOTIONS IN CRYSTALS.
Quarterly progress rept. no. 25, 1 Jun-31 Aug 65,
by R. A. Young. 29 Nov 65, 8p. Contract Nonr-991 (00) ,Nonr-991 (06) Proj. NR-017-623 ,A-389
Unclassified report

See also AD-620 437.

Descriptors: (*Crystals, X-ray diffraction analysis), (*X-ray diffraction analysis, Crystals), (*Thermal stresses, Crystals), Silicon, Vibration, Crystal lattice defects, Germanium

Research on x-ray diffraction studies of thermal motions in crystals is summarized.

AD-624 251 See Fld. 20/12

AD-624 382 See Fld. 11/9

AD-624 427 See Fld. 11/7

AD-624 514 See Fld. 20/5

AD-624 718 See Fld. 20/3

AD-624 719 See Fld. 7/4

AD-624 792 See Fld. 20/3

20/3. ELECTRICITY AND MAGNETISM

AD-624 312 Fld. 20/3, 9/1
CFSTI Prices: HC $2.00 MF $0.50
NAVAL AIR DEVELOPMENT CENTER JOHNSVILLE PA AERO-ELECTRONIC TECHNOLOGY DEPT
AN INTRODUCTORY THEORETICAL STUDY OF CONSTANT PERMEABILITY MAGNETIC SHIELDING.
Foundational research rept.,
by Ronald P. Lepping. 23 Nov 65, 31p. Rept. no. NADC-AE-6509
Task R360FR102/2021/R011-01-01 ,FR-30-3-01
Unclassified report

Descriptors: (*Electromagnetic shielding, Permeability (Magnetic)), (*Permeability (Magnetic), Electromagnetic shielding), (*Magnetism, Suppressors), Structural shells, Magnetic properties, Mathematical analysis, Theory

Some basic concepts of the constant permeability magnetic shielding problem are examined, and useful mathematical expressions for the static magnetic shielding factor, which follow as a natural consequence of the application of Ampere's law to spherically symmetric, isotropic magnetic shells are developed. The magnetic shielding factor is the ratio of the external unperturbed magnetic field (i.e., measured in the absence of the shield) to the shield's internal field. The development is initially carried out for a single-shell shield and then extended to trilamellar shielding, which is usually more efficient for a given amount of magnetic material. Particular values of shielding factors are calculated for single- and double-shell shields for low permeability magnetic material. (Author)

AD-624 381 Fld. 20/3, 20/12
CARNEGIE INST OF TECH PITTSBURGH PA
HALL EFFECTS, RESISTIVITY, AND THERMOPOWER IN FE AND FE (1-X)NI (X) FOR X=0 TO 0.2,
by Stephen Soffer, James A. Dreesen, and Emerson M. Pugh. 24 May 65, 8p. Contract DA-ARO (D)-31-124-G652 AROD 3221:3
Unclassified report

Availability: Published in the Physical Review, V140 N2A PA668-75 Oct 18 1965. Copies to DDC users only.

Descriptors: (*Hall effect, Iron alloys), (*Iron alloys, Nickel alloys), (*Resistance (Electrical), Iron alloys), Band theory of solids, Thermoelectricity, Power, Anisotropy, Relaxation time

Measurements were made of the ordinary and extraordinary Hall effects and the electrical resistivity in a series of iron-nickel alloys from pure iron to 20% nickel in iron, in the temperature range from 77K to room temperature. The thermopower of the same alloys was measured in the range from 200 to 300K. The ordinary Hall, thermopower, and resistivity data indicate that hole conduction is important for pure iron, and that as nickel is added electron conduction becomes more important. The location and shape of the Fermi surface is estimated from the results of an energy-band calculation, using a rigid-band model. The results are in agreement with increasing electron and decreasing hole contributions as nickel is added to iron. Both the data and the energy-band results seem to lead to a complicated multiband picture at low nickel concentrations and an approach towards single-, nearly spherical-, band conduction at 20% nickel. The temperature and composition dependence of the ordinary Hall coefficients are accounted for qualitatively by estimates of the anisotropy of the relaxation time and of the effect of

impurity scattering on the relaxation time. The extraordinary Hall coefficient is fitted by a number of models based upon theories by various authors. Fairly good agreement with experiment is obtained over a wide range of composition and temperature, but with no clear preference for any of the theories. (Author)

AD-624 445 Fld. 20/3
CFSTI Prices: HC $1.00 MF $0.50
CALIFORNIA UNIV LOS ANGELES DEPT OF PHYSICS
MAGNETOSTATIC MODES IN ANTIFERROMAGNETS AND CANTED ANTIFERROMAGNETS,
by D. E. Beeman. 1965, 7p. Contract Nonr-233 (88)

Unclassified report

Descriptors: (*Antiferromagnetism, Magnetic properties), Spheres, Magnetic properties, Perturbation theory, Equations of motion

The resonance frequencies of the magnetostatic modes are calculated for an antiferromagnetic sphere with a.d.c. magnetic field applied along the direction of easy magnetization. The magnetostatic modes of canted antiferromagnets of the alpha-Fe2O3 type are also investigated. Application of the magnetostatic conditions and solution of the differential equation for the magnetic scalar potential for a spherical sample reveals separations between modes of order 0.1 (H (o)+H (DM) 4piM/H (ex)oe. These modes are associated with the low frequency resonance near omega (1). (Author)

AD-624 707 Fld. 20/3, 9/5
CFSTI Prices: HC $1.00 MF $0.50
NAVAL RESEARCH LAB WASHINGTON D C
THE ROLE OF INDUCTANCE IN SUPERCONDUCTING ENERGY STORAGE CIRCUITS.
Memo. rept.,
by D. J. Hanrahan. Oct 65, 11p. Rept. no. nrl-1658
Proj. RR-010-04-41-5950 (RN) ,SR-007-12-01-0800

Unclassified report

Descriptors: (*Inductance, Superconductors), (*Superconductors, Inductance), Electronic switches, Circuits, Power equipment

The zero-resistance property of superconducting circuits makes inductance a decisive parameter. The performance of a superconductor energy storage system is marred by the presence of inductance in either the superconducting switch or the load. Both kinds of inductance result in an energy loss. The superconducting switch should be made non-inductive, but the normal resistance of the switch also causes an energy loss. The effects of both load inductance and finite switch resistance may be minimized by a current-step-down output transformer. (Author)

AD-624 718 Fld. 20/3, 20/2, 20/10
CFSTI Prices: HC $2.00 MF $0.50
PENNSYLVANIA UNIV PHILADELPHIA DEPT OF PHYSICS
THE PRESENT STATUS OF THE TEMPERATURE DEPENDENCE OF MAGNETOCYRSTALLINE ANISOTROPY, AND THE L (L+1)/2 POWER LAW.
Technical rept.,
by Herbert Callen, and Earl Callen. Aug 65, 47p. Rept. no. tr-25
Contract Nonr-551 (36)

Unclassified report

Prepared in cooperation with Oksaka Univ. (Japan). Dept. of Physics.

Descriptors: (*Anisotropy, Crystals), (*Field theory, Ferromagnetic materials), Temperature, Magnetostriction, Magnetic fields, Quantum mechanics, Spin, Power series, Ground state

The theory of the temperature dependence of magnetocrystalline anisotropy in ferromagnetic insulators is reviewed and summarized. The l (l+1)/2 power law for the behavior at low temperatures is derived in a general fashion and the extension to arbitrary temperatures is also given. It is then shown that the l (l+1)/2 power law is not directly applicable to antiferromagnets, but that contrary to current opinion, quantum corrections to the ground state introduce significant alterations. The magnetic field dependence of the anisotropy energy and the l (l+1)/2 power law for the temperature dependence of magnetostriction are discussed. (Author)

AD-624 720 Fld. 20/3, 12/1, 20/10
CFSTI Prices: HC $2.00 MF $0.50
PENNSYLVANIA UNIV PHILADELPHIA DEPT OF PHYSICS
A WICK'S THEOREM FOR SPIN OPERATORS, WITH AN APPLICATION TO SPIN WAVES IN ANTIFERROMAGNETS.
Technical rept.,
by Yung-Li Wang, S. Shtrikman, and Herbert Callen. Oct. 65, 49p. Rept. no. tr-27
Contract Nonr-551 (36)

Unclassified report

Descriptors: (*Operators (Mathematics), Spin), (*Antiferromagnetism, Operators (Mathematics)), (*Perturbation theory, Magnetic properties), Green's function, Power series, Quantum mechanics, Field theory, Excitation

An analogue of Wick's theorem is developed for spin-1/2 operators, and a linked diagram expansion for spin Green functions is derived. As an application the familiar Anderson approximation is derived for spin waves in antiferromagnets, and the leading dynamical and kinematical corrections to that approximation are obtained. The Oguchi form of correction, usually obtained by a formal expansion in 1/S extrapolated to S = 1/2, is found here as the leading term of an expansion in powers of 1/z, where z is the number of nearest neighbors. However, the Oguchi result is here found to be valid only for spin waves with wave lengths greater than two or three inter-spin distances. (Author)

AD-624 721 Fld. 20/3, 20/13, 20/10
CFSTI Prices: HC $3.00 MF $0.50
PENNSYLVANIA UNIV PHILADELPHIA DEPT OF PHYSICS
THERMODYNAMIC PROPERTIES OF SPIN IMPURITIES IN HEISENBERG FERROMAGNETS.
Technical rept.,
by Daniel Hone, Herbert Callen, and Lawrence R. Walker. Nov 65, 51p. Rept. no. tr-28
Contract Nonr-551 (36)

Unclassified report

Prepared in cooperation with Bell Telephone Labs., Inc., Murray Hill, N. J.

Descriptors: (*Ferromagnetism, Spin), (*Spin, Impurities), (*Thermodynamics, Impurities), Field theory, Perturbation theory, Crystal structure, Green's function, Quantum mechanics

Thermodynamic properties of an isolated spin impurity in a Heisenberg ferromagnet are calculated as functions of the magnitude of the impurity spin and of the strength of its exchange coupling to the host spins. The magnetization of the impurity, the energy and weight of its s-state localized mode (when such exists), and the shape of the local spectral weight function are all obtained as functions of temperature. (Author)

AD-624 723 Fld. 20/3
LINCOLN LAB MASS INST OF TECH LEXINGTON
THE LORENTZ FORCE,
by Mitchell S. Cohen, and Kenneth J. Harte. 4 Jun 65, 2p. Rept. no. ja-2596
Contract AF19 (628)-5167 ESD TDR-65-50

Unclassified report

Availability: Published in Proceedings of IEEE V53 N8 P1145 Aug 1965. Copies to DDC users only.

Descriptors: (*Charged particles, Force (Mechanics)), (*Force (Mechanics), Magnetic fields), Field theory, Velocity, Ferromagnetism

It has been recognized that the force acting on a charged particle passing through a magnetic material may not necessarily be given by either of the macroscopic relations qv x B or qv x mu H, but is determined by the Microscopic fields acting on the particle during its passage. It may be useful to point out, however, that several experimental observations of the deflection of a beam of charged particles passing through a ferromagnet do in fact support the expression qv x B. (Author)

AD-624 792 Fld. 20/3, 20/2
CFSTI Prices: HC $2.00 MF $0.50
CLARENDON LAB UNIV OF OXFORD (ENGLAND)
THEORIES OF MAGNETISM.
Annual technical rept. no. 1, 1 Oct 64-30 Sep 65,
by R. J. Elliott. 30 Sep 65, 28p. Contract DA-91-591-EUC-3402 Proj. DA-20014501B11B Task 01

Unclassified report

Descriptors: (*Magnetism, Theory), Impurities, Resistance (Electrical), Metals, Spin, Perturbation theory, Selection rules, Anisotropy, Crystal lattice defects, Green's function

The Kondo effect and the theory of spin waves are discussed. The minimum in the resistance of several metals has been traced to transition metal impurities in tiny concentrations. Kondo has shown that the effect follows from the existence of localised spins on the impurity. The scattering of conduction electrons from a centre with an internal degree of freedom has an essential many-body character. When the exchange coupling between the conduction electrons and the localised spin is antiferromagnetic he found as T approaches O a logarithmic divergence in third-order perturbation theory which gave an increase in the resistivity as T decreased and hence a minimum when added to the ordinary term. The interaction between a pair of spins was examined. Several aspects of spin wave theory were considered. A space group theory was set up to describe the form of spin wave spectra, calculate selection rules, etc.

AD-624 264 **See Fld. 7/4**

AD-624 292 **See Fld. 7/4**

AD-624 298 **See Fld. 20/8**

AD-624 341 **See Fld. 20/6**

AD-624 376 **See Fld. 20/12**

AD-624 434 **See Fld. 7/4**

AD-624 455 **See Fld. 19/1**

AD-624 486 **See Fld. 20/9**

AD-624 506 **See Fld. 20/9**

AD-624 812 **See Fld. 9/2**

AD-624 828 **See Fld. 9/1**

20/4. FLUID MECHANICS

AD-624 302 Fld. 20/4, 14/2
CFSTI Prices: HC $1.00 MF $0.50
SYRACUSE UNIV RESEARCH INST N Y DEPT OF MECHANICAL AND AEROSPACE ENGINEERING

INVESTIGATIONS ON REGIONS OF NEGATIVE TURBULENT ENERGY-PRODUCTION.
Annual technical rept. Oct 64-Oct 65,
by Fadel Erian. Nov 65, 23p. Rept. no. ME937-6511
Contract Nonr-669 (16)
Unclassified report

Descriptors: (*Turbulence, Energy), (*Jets, Fluid dynamic properties), Shear stresses, Gas flow, Viscosity, Pressure, Velocitiy, Wind tunnels, Partial differential equations

The turbulent energy equation was investigated with particular emphasis on the mechanism of negative energyproduction. A new electronic equipment was constructed for the measurement of triple correlation terms given by uq sq and vq sq. A measuring system was developed which could produce the values of up and vp. The existing flow field was manipulated so that the regions of negative energy-production, usually very small, could be enlarged so that instrumentation could be introduced without much difficulty. (Author)

AD-624 327 Fld. 20/4, 7/4
KANSAS UNIV LAWRENCE DEPT OF CHEMISTRY
NUMERICAL SOLUTIONS OF THE PERCUS-YEVICK EQUATION FOR THE HARD-SPHERE POTENTIAL,
by Gerald J. Throop, and Richard J. Bearman. 19 Oct 64, 7p. Contract AF-AFOSR-376-63
AFOSR 65-1659
Unclassified report

Availability: Published in the Journal of Chemical Physics V42 N7 P2408-11 Apr 1 1965. Copies to DDC users only.

Descriptors: (*Fluids, Spheres), (*Potential theory, Spheres), (*Numerical analysis, Integral equations), Distribution functions, Monte Carlo method

The exact solution of the Percus-Yevick equation for the radial distribution function of a classical fluid of hard spheres found by Wertheim is evaluated numerically for a range of number densities. Comparison is made with the radial distribution functions found using other integral equations and Monte Carlo calculations. (Author)

AD-624 328 Fld. 20/4, 7/4
KANSAS UNIV LAWRENCE DEPT OF CHEMISTRY
RADIAL DISTRIBUTION FUNCTIONS FOR MIXTURES OF HARD SPHERES,
by Gerald J. Throop, and Richard J. Bearman. 14 Dec 64, 9p. Contract AF-AFOSR-376-63 Proj. AF-9760 Task 9760 03
AFOSR 65-1658
Unclassified report

Availability: Published in the Journal of Chemical Physics V42 N8 P2838-43 15 Apr 1965. Copies to DDC users only.

Descriptors: (*Fluids, Spheres), (*Distribution functions, Fluids), Thermodynamics, Integral equations, Integral transforms

The exact solution of the Percus-Yevick equation for the radial distribution functions for a mixture of hard spheres is evaluated. The Laplace transforms found by Lebowitz are inverted numerically to obtain the radial distribution functions for a two-component mixture of hard spheres under varying conditions of size ratio, mole fraction, and number density. Results are presented graphically. The distribution functions should portray valid information about the geometrical structure of fluid mixtures. (Author)

AD-624 433 Fld. 20/4
CFSTI Prices: HC $3.00 MF $0.75
CORNELL AERONAUTICAL LAB INC BUFFALO N Y
THE EFFECTS OF MASS-TRANSFER ON THE DYNAMIC STABILITY OF SLENDER CONES.
Technical rept.,
by Donald D. Colosimo. May 65, 59p. Rept. no. CAL-141
Unclassified report

Descriptors: (*Mass transfer, Ablation), (*Ablation, Conical bodies), (*Reentry vehicles, Stability), Slender bodies, Atmosphere entry, Hypersonic wind tunnels, Heat shields, Materials

An exploratory analytical and experimental investigation of the effects of the mass-transfer of an ablating engineering material on the dynamic stability of teflon models slender vehicles in hypersonic flow was initiated. These data obtained with the ablation of engineering materials were compared to data obtained with blowing techniques and very low temperature sublimers. In this comparison of dynamic stability data with masstransfer, no consistency is discernible among the data obtained with the different methods of mass addition. An attempt to generate empirical values for the boundary layer terms in the theory indicates that present theoretical analyses of the stability of slender vehicles including viscous effects have not yet been perfected. (Author)

AD-624 446 Fld. 20/4
CFSTI Prices: HC $3.00 MF $0.75
CINCINNATI UNIV OHIO DEPT OF AEROSPACE ENGINEERING
COMPRESSIBLE VISCOUS FLOW OVER SLENDER BODIES WITH PRESSURE GRADIENT, VARIABLE FLUID PROPERTIES, ARBITRARY LAWS OF SURFACE TEMPERATURE AND FOREIGN GAS INJECTION VELOCITY DISTRIBUTION.
Technical rept.,
by A. C. Jain, and T. Y. Li. Oct 65, 91p. Rept. no. tr-AE-6504
Contract Nonr-2168 (03) Proj. NR-061-138
Unclassified report

Descriptors: (*Compressible flow, Slender bodies), (*Slender bodies, Compressible flow), Pressure, Viscosity, Gas flow, Surface temperatures, Thermal conductivity, Injection, Series, Transport properties, Thermodynamics, Velocity, Distribution

A Gortler's type series solution is developed for compressible viscous flows over slender bodies with pressure gradient, variable fluid properties, arbitrary laws of surface temperature and foreign gas injection velocity distribution. A detailed analysis of the external flow is carried out in order to show the effect of the free-stream Mach number on the flow variables in the external stream and to enable us to correlate the boundary layer coordinate with the physical distance on the body of a simple analytical expression.

AD-624 472 Fld. 20/4
CFSTI Prices: HC $2.00 MF $0.50
GENERAL ELECTRIC CO PHILADELPHIA PA MISSILE AND SPACE DIV
THE REFLECTION OF A SHOCK WAVE AT A SURFACE.
Technical information series,
by Sinclaire M. Scala, and Paul Gordon. Jun 65, 44p. Rept. no. r65SD24
Unclassified report

Descriptors: (*Shock waves, Propagation), Velocity, Pressure, Density, Temperature, Heat transfer, Shock tubes, Gas flow, Pistons

A new finite difference method is employed for the first time in obtaining numerical solutions for the complete Navier-Stokes equations. The physical problem treated is the time-dependent propagation of a one-dimensional disturbance, which is produced by the forward motion of a piston through a compressible, viscous, thermally conducting, perfect diatomic gas and its subsequent reflection at a material surface. Two values of disturbance strength are considered, including weak and strong shock waves. The quantities determined include the variation of gas velocity, pressure, density and temperature as a function of time and distance. In addition, the heat transfer rate and the pressure, which are of considerable interest in the interpretation of shock tube phenomena, are determined at the surface during the period of reflection of the shock wave. (Author)

AD-624 488 Fld. 20/4
CFSTI Prices: HC $3.00 MF $0.75
NORAIR DIV NORTHROP CORP HAWTHORNE CALIF
INVESTIGATION OF METHODS FOR RE-ESTABLISHMENT OF A LAMINAR BOUNDARY LAYER FROM TURBULENT FLOW.
Summary rept.,
by W. Pfenninger, and John W. Bacon Jr.. Feb 65, 65p. Rept. no. nor-65-48 (BLC-161)
Contract NOw-63-0762-c
Unclassified report

Descriptors: (*Laminar boundary layer, Area suction), (*Turbulent boundary layer, Boundary layer control), Laminar flow, Thickness, Velocity, Flat plate models, Stabilization

By means of area suction, laminar flow was reestablished in tripped turbulent boundary layers for a unit Reynolds number range from 0.4 to 1.0 million per foot in incompressible flow. The removal of about 1.5 times the turbulent boundary layer thickness is adequate to restart a maintainable laminar boundary layer. Hot wire observations show that the restarted laminar boundary layer is generally a composite layer with laminar velocity fluctuations from the wall out to about one boundary layer thickness and weak turbulent velocity fluctuations in the outer portion. (Author)

AD-624 551 Fld. 20/4
CFSTI Prices: HC $3.00 MF $0.50
POLYTECHNIC INST OF BROOKLYN N Y DEPT OF AEROSPACE ENGINEERING AND APPLIED MECHANICS
AN EXPERIMENTAL STUDY OF THE TURBULENT MIXING OF A SUBSONIC AND A SUPERSONIC JET IN A CLOSED DUCT,
by Harry S. Bluston. May 65, 56p. Rept. no. pibal-868
Contract AF-AFOSR-1-63 AFOSR 65-1794
Unclassified report

Descriptors: (*Jet mixing flow, Turbulence), (*Subsonic flow, Jet mixing flow), (*Supersonic flow, Jet mixing flow), Velocity, Ducts, Pressure, Jets, Mathematical analysis

An experimental study is presented of the turbulent mixing of two coaxial air jets at subsonic-supersonic speeds in a closed duct. The investigation was undertaken to obtain velocity profiles and axial velocity decay results and other turbulent flow properties with existing PIBAL equipment, and to analyze the conditions needed for an improved experiment. By using a suitable total pressure it was possible to correctly expand the ducted outer jet to ambient conditions. Negligible pressure gradients were found in a considerable region of the duct and all static and stagnation pressure measurements were made in the regime. The axial velocity decay was thus determined. On the basis of the pressure measurements the flow field was divided into three mixing regions. In each of these regions the normalized velocity and total pressure profiles were correlated with values of the axial and radial coordinates. Jet boundaries were measured and an eddy viscosity function calculated. Detailed recommendations are made for improvements of this type of experiment. (Author)

AD-624 554 Fld. 20/4
CFSTI Prices: HC $2.00 MF $0.50
MASSACHUSETTS INST OF TECH CAMBRIDGE AEROPHYSICS LAB
RADIATION COUPLED WEDGE FLOW USING METHOD OF INTEGRAL RELATIONS,

by Martin C. Jischke. Apr 65, 42p. Rept. no. tr-112 ,MIT-DSR-5170
Contract AF-AFOSR-62-406 ,AF-AFOSR-614-64 AFOSR 65-1727

Unclassified report

Descriptors: (*Thermal radiation, Supersonic flow), (*Supersonic flow, Wedges), (*Numerical analysis, Integrals), Shock waves, Aerodynamic configurations, Aerodynamics

The radiation coupled supersonic flow past a wedge (or cone) is formulated using the first approximation of the method of integral relations. Solutions obtained for wedge flow of an optically thin, i.e. nonabsorbing, gas indicate a temperature decrease and density increase along the surface with a corresponding shock wave decay. Radiation effects on velocity and pressure are relatively small. Anamolous behavior of the transparent gas far downstream of the leading edge suggests a criterion for estimating the region of validity for the optically thin gas approximation. (Author)

AD-624 580 Fld. 20/4
CFSTI Prices: HC $3.00 MF $0.75
HARVARD UNIV CAMBRIDGE MASS DEPT OF MATHEMATICS
SECONDARY FLOW IN A VISCOUS VORTEX,
by Albert I. Barcilon. 22 Nov 65, 74p. Contract Nonr-1866 (34)

Unclassified report

Descriptors: (*Secondary flow, Vortices), (*Vortices, Viscosity), Laminar boundary flow, Axially symmetric flow, Laminar flow, Diffusion, Mathematical models

The decay for $t > 0$ of a potential swirling flow is studied at $t = 0$, when a constant positive value is suddenly imposed on the kinematic viscosity. The flow at this instant is taken to be a potential vortex swirling on top of an infinite stationary horizontal plate. The fluid is assumed to have a constant density, and the flow is laminar and axially symmetric. The interaction of the axial boundary layer flow and the plate boundary layer is studied.

AD-624 598 Fld. 20/4
CFSTI Prices: HC $7.00 MF $1.75
ORDNANCE AEROPHYSICS LAB GENERAL DYNAMICS|DAINGERFIELD TEX
MACH NUMBER TABLES (GAMMA = 1.4) WITH CORRECTION FACTORS FOR REAL AIR.
Memo. rept.,
by H. C. Kerr. 9 Apr 64, 382p. Rept. no. oal-147-1 ,CM-1036-1
Contract NOw-63-0405-c

Unclassified report

Descriptors: (*Air, Aerodynamic characteristics), (*Aerodynamics, Gas flow), (*Gas flow, Aerodynamic characteristics), Thermodynamics, Shock waves, Fluid dynamic properties, Tables

This memorandum is composed of three tables, along with a brief description of each. It is well known that the common Mach tables for air (gamma = 1.4) are accurate only if the temperature of the flow is everywhere comparatively low. In order to increase the usefulness of these tables, certain auxiliary tables of correction factors have been constructed which give satisfactory results over a wide range of total temperatures and pressures. These auxiliary tables apply a correction factor to the common Mach tables and must therefore be used in conjunction with them. The factors are very easy to apply and they greatly increase the accuracy of the ordinary Mach tables within the limits of the assumptions made. TABLE I: Thirteen Mach functions useful in flow analysis are tabulated over a wide range of Mach number values: O< or = M< or = 25. Both the isentropic and the normal shock functions are included. All results are based on gamma = 1.4. TABLE II: This table lists correction factors for the Mach functions of Table I associated with the isentropic flow of real air. It covers the ranges: .1< or = P (atm)< or = 500; 900 < or = T (R)< or = 12,600; O2 or = M< or = (5-25). TABLE III: This table is similar to Table II, except it lists the correction factors for the Mach functions of Table I associated with the flow of real air across a normal shock. (Author)

AD-624 683 Fld. 20/4
CFSTI Prices: HC $3.00 MF $0.50
MASSACHUSETTS INST OF TECH CAMBRIDGE
A STUDY OF AXISYMMETRIC TRANSONIC FLOW USING THE METHOD OF PARAMETRIC DIFFERENTIATION.
Master's thesis,
by Norman English Dupee,III.. Aug 65, 54p.
Contract AF33 (608)-1249

Unclassified report

Descriptors: (*Transonic flow, Axially symmetric flow), Boundary value problems, Turbulance, Correlation techniques, Green's function

The method of parametric differentiation was applied to the problem of inviscid transonic flow about a slender body of revolution at zero angle of attack. The method consists of differentiating the equation governing the axial velocity with respect to the characteristic body thickness ratio and solving for the rate of change of the velocity with this ratio, using the method of multiple scales. An integral equation for the velocity at a given radius from the body is thus developed and it is shown how this velocity may be matched to that given by the inner and outer expansion method to compute pressures on the body. It is demonstrated that the results of this new approach reduce to the well-known Spreiter-Alksne theory for slender bodies in the limits of small radial distance and local linearization with respect to the source velocity and thickness ratio. The major problem is to take into account the dependence of the velocity on the radial coordinate. One method of doing this is presented, but difficulties arise in the mathematics due to changes in orders in the assumed asymptotic series. (Author)

AD-624 761 Fld. 20/4, 20/13
CFSTI Prices: HC $2.00 MF $0.50
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
CALCULATION OF A LAMINAR BOUNDARY LAYER FOR SUBLIMABLE SURFACE,
by V. V. Shchennikov. 19 Nov 65, 26p. Rept. no. ftd-MT-65-10
TT 65-64792

Unclassified report

Edited machine trans. of Zhurnal Vychislitelnoi Matematiki i Matematicheskoi Fiziki (USSR) v1 n5 p869-83 1961.

Descriptors: (*Laminar boundary layer, Numerical analysis), (*Sublimation, Blunt bodies), (*Supersonic flow, Sublimation), Axially symmetric flow, Chemical reactions, Graphite, Chemical equilibrium, USSR

The work is devoted to the problem of the calculation of a laminar boundary layer near sublimable axially symmetric blunt body, moving at a great supersonic speed. There are obtained equations and boundary conditions of the problem. The high temperature in boundary layer causes the presence of chemical reactions. The method of calculating the stationary flow near the critical point of a blunt axially symmetric sublimable body, whose temperature and pressure satisfy either the condition of phase transition, or condition of evaporation is presented. The assumption as to the stationarity of the flow is justified by the following considerations. It is possible to present a special body, which in sublimating repeats its own shape. On the other hand, for any smooth body this assumption has substantiation when the speed of the sublimation is much less than the speed of the oncoming flow. The obtained numerical results for the case of a body consisting of graphite flowed around by oxygen where the chemical reactions occurring in the boundary layer are assumed to be equilibrium. (Author)

AD-624 809 Fld. 20/4
CFSTI Prices: HC $2.00 MF $0.50
AEROSPACE TECHNOLOGY DIV LIBRARY OF CONGRESS WASHINGTON D C
MIXING OF CONCENTRIC HIGH-VELOCITY AIRSTREAMS,
by Seraphim Parandjuk. 29 Oct 65, 29p. Rept. no. atd-P-65-96
TT 65-64799

Unclassified report

Abstracts of articles selected from Soviet open literature.

Descriptors: (*Gas flow, Jet mixing flow), (*Jet mixing flow, Gas flow), (*Fluid mechanics, USSR), Bibliographies, State-of-the-art reviews, Abstracts

AD-624 243 See Fld. 7/4

AD-624 291 See Fld. 7/4

AD-624 508 See Fld. 13/10

AD-624 563 See Fld. 20/9

AD-624 564 See Fld. 20/9

AD-624 646 See Fld. 20/13

AD-624 851 See Fld. 12/1

20/5. MASERS AND LASERS

AD-624 317 Fld. 20/5, 7/4
CFSTI Prices: HC $1.00 MF $0.50
CALIFORNIA UNIV SAN DIEGO INST FOR RADIATION PHYSICS AND AERODYNAMICS
PROCEEDINGS OF THE CHEMICAL LASER CONFERENCE, UNIVERSITY OF CALIFORNIA, SAN DIEGO, SEPTEMBER 9-11, 1964.
Final rept.
11 Oct 65, 9p. Contract Nonr (G)-00047-64

Unclassified report

Descriptors: (*Lasers, Symposia), Physical chemistry, Chemical reactions, Statical mechanics, Transport properties

AD-624 359 Fld. 20/5, 9/1, 9/5
CFSTI Prices: HC $2.00 MF $0.50
AIRBORNE INSTRUMENTS LAB DEER PARK N Y
STUDY OF SOLID-STATE AND TRAVELING-WAVE MASER TECHNIQUES.
Interim rept.,
by J. A. DeGruyl, W. W. Heinz, S. Okwit, J. G. Smith, and Ronald W. Vandivier. Nov 65, 30p.
Contract AF30 (602)-2989 Proj. AF-4506
Task 450602
RADC TR-65-366

Unclassified report

See also AD-618 403.

Descriptors: (*Masers, Experimental design), (*Traveling-waves tubes, Masers), (*Semiconductor devices, Masers), Broadband, Microwave amplifiers, Germanium, Waveguides, Magnetic fields, Limiters, Modulation, Microwaves

The purpose of this program is to develop improved maser techniques and apply them to a broad-band maser system. The deliverable breadboard maser system has been fabricated, assembled, and initial testing has been completed. The unit basically provided gains of 30 db over 260 Mc of instantaneous bandwidth at 2.1 K. This inherent bandwidth far exceeds that obtained in any other

maser known to date. Continued performance testing and limited modifications to the system are being made during the final phase of the program. An extension in time has been requested to enable this work to be completed. The semiconductor device program has been completed. This work has resulted in the development of techniques for limiting as well as modulating microwave signals. The results were presented at the recent PGMTT Symposium in Clearwater, Florida. (Author)

AD-624 481 Fld. 20/5, 20/6
CFSTI Prices: HC $3.00 MF $0.75
GPL DIV GENERAL PRECISION INC PLEASANTVILLE N Y
PUMPED TRANSFORMER LASERS.
Technical summary rept. no. 2, 1 May-1 Nov 65, by Cecil B. Ellis, James H. Simpson, and Donald S. Bayley. 22 Nov 65, 85p. Rept. no. gpl-A-31-2
Contract Nonr-4718 (00) ,ARPA Order-306 Proj. DEFENDER
Unclassified report

See also AD-618 896.

Descriptors: (*Lasers, Pumping (Optical)), Light, Amplifiers, Neodymium, Glass, Cyanogen, Gases, Nitrogen, Cesium, Atomic properties, Molecular, properties

Most of the analysis in this period has dealt with use of metastable nitrogen molecules as the active medium for a transformer laser to be pumped by a battery of Nd glass auxiliary lasers. It was concluded that such a medium would be operable, but that adequate data are not at hand to produce optimism on reaching maximum output pulse energy densities in the nitrogen greater than the region of one joule/cc, with satisfactory maintenance of optical beam quality. An extension of previous analysis on a similar use of CN molecules indicates that this medium might be expected to yield satisfactory outputs around one joule/cc or somewhat greater. From the meager information available today, it appears that diatomic cesium molecules might possibly surpass CN and constitute the best medium for transformer action with Nd glass laser pumping. An experimental attack on some of the many remaining unknowns regarding Cs2 is now underway, and first preliminary tests are reported. A beginning has been made toward mathematical spatial analysis of the high power flux patterns to be expected within a heavily pumped transformer medium. (Author)

AD-624 514 Fld. 20/5, 20/2, 11/2
CFSTI Prices: HC $3.00 MF $0.75
LINDE DIV UNION CARBIDE CORP INDIANAPOLIS IND
SYMMETRICAL LASER CRYSTALS.
Final technical rept. 1 May 63-31 Oct 65, by O. H. Nestor. 30 Nov 65, 75p. Rept. no. srcr-65-9
Contract Nonr-4131 (00) ,ARPA Order-306-62 Proj. NR-017-708
Unclassified report

Descriptors: (*Lasers, Symmetry (Crystallography)), (*Crystal growth, Refractory materials), Doping, Ions, Dielectric properties, Melting, Synthesis, Single crystals, Electrical conductance, Strontium compounds, Titanium compounds, Tin compounds, Barium compounds, Zirconium compounds, Oxides, Corundum, Ruby

The development of cubic perovskites as symmetric hosts for laser dopant ions is of interest because long fluorescent lifetimes are to be expected. Other work on LaAlO3:Cr appears to confirm this. The simple II-IV perovskites are of interest as hosts for divalent and tetravalent dopants, but only four such compounds SrTiO3, SrSnO3, BaSnO3 and BaZrO3 are known to be cubic at room temperature. The low dielectric properties and stability toward reduction of BaZrO3 makes it the most attractive potential host. The refractory nature of this compound has heretofore prohibited melt synthesis of single crystal BaZrO3. A novel crucible-less melting technique, referred to as 'skull-melting', was studied intensively as a means for producing single crystals of BaZrO3 (and SrTiO3). The process involves inductive coupling of electromagnetic radiation directly to the melt which acts as its own susceptor. The effects of many of the numerous variables, both thermal and electrical, on the process were studied. The coupling of energy is found to depend primarily on the frequency and the size and electrical conductivity of the melt. Numerous experiments demonstrated that SrTiO3 (and BaTiO3) may be fused by this process in a nearly reproducible manner and maintained in the molten state apparently indefinitely. Many attempts were made to pull single crystals of SrTiO3 (and BaTiO3) but only dark, polycrystalline masses of partially deoxidized material were obtained.

AD-624 558 Fld. 20/5, 20/12, 20/6
CFSTI Prices: HC $2.00 MF $0.50
PERKIN-ELMER CORP NORWALK CONN ELECTRO-OPTICAL DIV
CRYSTALS FOR OPTICAL MASER APPLICATIONS.
Quarterly progress rept. no. 2, 1 May-31 Jul 65, by J. B. Schroeder, and J. F. Nester. 31 Aug 65, 34p. Rept. no. pe-TR-8110
Contract DA-28-043-AMC-00474 (E) Proj. DA-1P6-22001-A-056 Task 1P6-22001-A-056-03
Unclassified report

Descriptors: (*Lasers, Crystals), (*Crystals, Lasers), Solid state physics, Optical equipment components, Annealing, Gadolinium compounds, Gallium compounds, Oxides, Crystal growth, Atomic spectroscopy, Excitation, Fluorescence, Neodymium, Doping, Glass, Light communication systems

This paper contains a discussion of experimental annealing techniques designed to relieve mechanical strain within Gd3Ga5O12 crystals. In addition, the techniques and data used for the measurement of excitation spectra, fluorescent lifetimes, large-angle scattering, and fluorescence linewidths for several neodymium-doped glasses are discussed. The analysis of data taken for the room-temperature ruby R sub 1 linewidth revealed instrument broadening effects, and various approaches to this measurement were examined. This report also mentions an optical walkie-talkie device, but details of the work on this instrument are deferred to a later report. Descriptions of the various optical components fabricated and delivered to the customer during the second quarter are also included. Plans for experimental work to be conducted during the next quarter are given. (Author)

AD-624 567 Fld. 20/5, 20/1
CFSTI Prices: HC $1.00 MF $0.50
MICROWAVE LAB STANFORD UNIV CALIF
MICROWAVE RESEARCH.
Quarterly status rept. no. 26, 1 May-31 Jul 65, by M. Chodorow. Sep 65, 19p. Rept. no. ml-1372
Contract Nonr-225 (48) Proj. NR-373-361
Unclassified report

See also AD-618 709.

Descriptors: (*Microwave frequency, Scientific research), (*Acoustics, Amplifiers), (*Lasers, Scientific research), Piezoelectric crystals, Semiconductors, Optics, Solid state physics, Diffraction, Light, Plasma medium

AD-624 728 Fld. 20/5, 20/6, 20/12
CFSTI Prices: HC $1.00 MF $0.50
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
THE GAAS SEMICONDUCTOR LASER,
by A. Moeschwitzer. 24 Nov 65, 10p. Rept. no. ftd-TT-65-891
TT 65-64784
Unclassified report

Unedited rough draft trans. of Radio und Fernsehen (German Democratic Republic) v13 n16 p488-90 1964.

Descriptors: (*Lasers, Semiconductors), (*Semiconductors, Lasers), Gallium compounds, Arsenides, Electromagnetism, Carriers (Semiconductors), Solid state physics, East Germany, Optics

AD-624 845 Fld. 20/5, 20/6
CFSTI Prices: HC $3.00 MF $0.50
ELECTRONIC DEFENSE LABS SYLVANIA ELECTRONIC SYSTEMS-WEST MOUNTAIN VIEW CALIF
TECHNIQUES FOR SUPER-MODE OSCILLATION.
Interim engineering rept. no. 2, 1 Sep-30 Nov 65, by Russell Targ, B. J. McMurtry, and S. E. Harris. 30 Nov 65, 53p. Contract AF33 (615)-2884
Unclassified report

Report includes appendix A, Frequency Selective Coupling to the FM Laser, to be published in Applied Physics Letters, Nov 15, 1965. See also AD-620 849.

Descriptors: (*Lasers, Frequency modulation), Electrooptics, Quantum mechanics, Monochromatic light, Crystals, Modulators, Helium, Neon, Optical equipment

The report describes an experimental and theoretical program to determine the fundamental properties of the FM and super-mode lasers. These two techniques make it possible to obtain at a single frequency the full power of a high-power multimode laser without suffering the loss in power inherent in conventional approaches involving the suppression of modes. The work of this program is divided broadly between two main activities. The first is to obtain a more complete understanding of the physics governing the operation of the FM and super-mode lasers. The second is concerned with improving the techniques for coupling the modes of the FM laser and finding more efficient means for full power super-mode conversion of the FM signal to a monochromatic output. Progress to date is summarized.

AD-624 286 **See Fld. 20/6**

AD-624 297 **See Fld. 9/1**

AD-624 301 **See Fld. 20/6**

AD-624 596 **See Fld. 20/2**

AD-624 611 **See Fld. 20/11**

20/6. OPTICS

AD-624 286 Fld. 20/6, 20/5
CFSTI Prices: HC $1.00 MF $0.50
HARRY DIAMOND LABS WASHINGTON D C
AN OPTICAL SURFACE DISCRIMINATOR,
by William L. Soper. 31 Aug 65, 10p. Rept. no. tm-65-41
Proj. DA-1A010501A015 ,HDL-36700
Unclassified report

Descriptors: (*Lasers, Reflectometers), (*Reflectometers, Infrared radiation), (*Infrared radiation, Reflectometers), Reflectors, Mirrors, Surface area, Optical properties, Optical equipment, Optical coatings, Dielectric properties

An apparatus has been designed and built for the purpose of discriminating between reflecting and nonreflecting surfaces for optical radiation in the near infrared. The design and performance of the apparatus are discussed. (Author)

AD-624 301 Fld. 20/6, 20/5
CFSTI Prices: HC $2.00 MF $0.50
PERKIN-ELMER CORP NORWALK CONN ELECTRO-OPTICAL DIV
CONTINUOUS-WAVE STIMULATED RAMAN EMISSION.
Semiannual technical summary rept. for 31 Oct 65,
by Marvin C. Tobin. Nov 65, 30p. Rept. no. pe-TR-8186
Contract Nonr-4847 (00) ,ARPA Order-306
Unclassified report

Descriptors: (*Raman spectroscopy, Emissivity), (*Lasers, Raman spectroscopy), Organic materials, Line spectrum, Scattering, Toluents, Electric fields, Gain

A total of twenty-five organic liquids were examined in this measurement series. Stimulated Raman emission was observed in twenty-one organic liquids. In none of these was the strongest line near 1057/cm, the frequency needed for continuous wave generation of stimulated Raman emission. In spontaneous Raman emission, however, three compounds were observed to have strong lines near 1057/cm and will be used in the continuous wave experiment. Spontaneous line halfwidths were measured in some of these compounds. A one-meter tank with glass walls was constructed and used with a Q- switch ruby laser to (1) observe light scattering in water and in organic liquids (2) look for effects ascribable to electrostriction and (3) measure a gain of 0.05/cm for the 1004/cm line of toluene in sample lengths of 50-100 cm. The light scattered to the side showed discrete scattering sites to be present. No effects definitely ascribable to electrostriction could be observed. (Author)

AD-624 341 Fld. 20/6, 20/3
NEBRASKA UNIV LINCOLN ELECTRICAL MATERIALS LAB
ERROR IN DIELECTRIC-FILM ELLIPSOMETER DETERMINATIONS DUE TO NEGLECT OF FILM ABSORPTION,
by D. W. Peterson, and N. M. Bashara. 28 Dec 64, 9p.
Unclassified report

Availability: Published in Journal of the Optical Society of America V55 N7 P845-50 Jul 1965. Copies to DDC users only.

Descriptors: (*Refractive index, Errors), (*Dielectric films, Refractive index), Absorption, Thickness, Optical properties, Substrates, Chromium, Stainless steel, Aluminum, Silver, Gold, Copper

The error in the calculated refractive index of an absorbing dielectric film, which is determined by approximate equations that neglect absorption, is influenced by the true refractive index of the film and the controllable parameters-substrate and measuring wavelength. For a given absorption coefficient (k) the error is greatest for low refractive index. In tests over the visible spectrum and an assumed n ! 1.4 and k = 0.01, Al and Ag give an error > 100%. The error using Cu and Au is small below a transition point near 5000 A (about 10%) and increases sharply thereafter, so that an absorption coefficient of 0.001 can give appreciable error above the transition point. Cr and steel are relatively independent of wavelength although they give an error somewhat greater than Au or Cu below the transition wavelengths of the latter. The approximate equations which neglect absorption give two relations for calculation of thickness. It is shown why one of these equations gives an insignificant error when small absorption is present and an independently determined refractive index is used in the thickness calculation. (Author)

AD-624 361 Fld. 20/6
CFSTI Prices: HC $3.00 MF $0.75
AMERICAN OPTICAL CO SOUTHBRIDGE MASS RESEARCH DIV
EXCITED STATE SATURABLE ABSORBER FOR 1.06 MICRON WAVELENGTH.
Final rept. 4 Aug 64-6 Jul 65,
by Charles C. Robinson. Nov 65, 66p. Contract AF30(602)-3470 Proj. AF-5581 Task 558101
RADC TR-65-369
Unclassified report

Descriptors: (*Electrooptics, Absorption spectrum), (*Absorption spectrum, Electrooptics), (*Light, Absorption), (*Optical glass, Absorption spectrum), Optics, Doping, Fluorescence, Ions, Uranium compounds, Oxides, Copper, Erbium, Excitation, Atomic energy levels, Electron transitions, Light communication systems, Lasers

The excited state absorption of a group of twenty glasses that were singly doped with fluorescent ions was investigated as a function of wavelength. Three ions Uo2 (2+), Cu (+), and Er (3+) showed a strong effect and these ions were studied more extensively. Energy transfer between Nd (3+), Yb (3+) and Er (3+) was shown to increase the excited state absorption in Er (3+). Excited state saturable absorption was not observed for the 1.06 micron wavelength in either the UO2 (2+) or the Cu+ glass. These last experiments were not extensive enough to be conclusive. (Author)

AD-624 439 Fld. 20/6, 6/4
CFSTI Prices: HC $1.00 MF $0.50
AEROSPACE TECHNOLOGY DIV LIBRARY OF CONGRESS WASHINGTON D C
OPTICAL DETECTION: COMPILATION OF ABSTRACTS.
Rept. no. 2 on ATD Work assignment no. 79,
by Frederick Pindy. 6 Dec 65, 15p. Rept. no. atd-65-84
TT 65-64725
Unclassified report

Consists of abstracts of articles published in the Soviet literature during June 1964 and early 1965. Rept. on Surveys of Soviet Scientific and Technical Literature.

Descriptors: (*Optical scanning, Bibliographies), (*Images, Visual perception), (*Visual perception, Images), Optics, Eye, Vision, Bionics, Pattern recognition, Information theory, USSR

Contents: Image Perception and Scanning, Informational Content of Images, Image Improvement.

AD-624 698 Fld. 20/6
CFSTI Prices: HC $3.00 MF $0.75
GEORGIA INST OF TECH ATLANTA ENGINEERING EXPERIMENT STATION
A FREQUENCY MEASURING SPECTRUM ANALYZER.
Interim technical rept.,
by Charles B. Wilson, and Walter B. Warren.
Nov 65, 77p. Rept. no. 300.A-744
Contract AF30(602)-3282 Proj. AF-4540 Task 454003
RADC TR-65-338
Unclassified report

Descriptors: (*Spectrum analyzers, Measuring devices (Electrical ; electronic)), Frequency, Measurement, Phase-locked systems, Oscillators

The report describes the theory of operation and the construction of three related systems which can be used to measure the frequency of the individual components of a composite signal spectrum. The frequency measurement is made by selectively synchronizing a phaselocked oscillator to each component and counting the output of this 'marker' oscillator. By using the marker oscillator in conjunction with or as an integral part of a spectrum analyzer, a visual indication of the frequency location of the marker oscillator with respect to the other components is obtained. Two of the systems operate in the region of 455 kc while the third tunes 4-30 Mc and is used in conjunction with a 455 kc system to measure the original RF frequency of components that appear in the IF passband of a receiver. (Author)

AD-624 734 Fld. 20/6, 14/2
CFSTI Prices: HC $1.00 MF $0.50
COAST GUARD BALTIMORE MD FIELD TESTING AND DEVELOPMENT CENTER
COLORIMETRIC MEASUREMENTS OF SELECTED COLOR CARDS,
by D. A. Naus. 22 Nov 65, 19p. Rept. no. 433
Proj. 3931/02/06
Unclassified report

Descriptors: (*Colors, Military requirements), (*Spectroscopy, Colors), Colorimetry, Spectrophotometers, Graphics, Tests, Measurement

Measurements are presented of the color differences between two sets of color cards representing colors selected as standard for Coast Guard use. Spectrophotometric curves are also presented for the colors contained in one set of these cards. (Author)

AD-624 765 Fld. 20/6, 14/2
CFSTI Prices: HC $2.00 MF $0.50
NATIONAL ELECTROTECHNICAL INST TURIN (ITALY)
SELF MODULATING DERIVATIVE OPTICAL SPECTROSCOPY. PART 2: EXPERIMENTAL.
Technical note,
by G. Bonfiglioli, P. Brovetto, G. Busca, S. Levialdi, and G. Palmieri. Oct 65, 28p. Rept. no. tn-6
Contract AF-EOAR-87-63 AFOSR 65-2304
Unclassified report

See also AD-616 457.

Descriptors: (*Spectroscopy, Optical phenomena), (*Spectrum analyzers, Modulation), Gain, Spectra (Visible ; ultraviolet), Differentiating circuits, Italy

A complete description is given of a first prototype of a SMODOS instrument, namely of its optical as well as electronic components. The project criteria are thoroughly discussed and some performances are shown, practically demonstrating the power of the method.

AD-624 323 **See Fld. 4/1**

AD-624 481 **See Fld. 20/5**

AD-624 558 **See Fld. 20/5**

AD-624 696 **See Fld. 17/2**

AD-624 719 **See Fld. 7/4**

AD-624 728 **See Fld. 20/5**

AD-624 812 **See Fld. 9/2**

AD-624 845 **See Fld. 20/5**

20/7. PARTICLE ACCELERATORS

AD-624 271 **See Fld. 20/8**

AD-624 298 **See Fld. 20/8**

AD-624 820 **See Fld. 21/5**

20/8. PARTICLE PHYSICS

AD-624 270 Fld. 20/8
CFSTI Prices: HC $2.00 MF $0.50
HIGH ENERGY PHYSICS LAB STANFORD UNIV CALIF
STUDY OF NUCLEAR EXCITATIONS IN B10, B11, AND N14 BY INELASTIC ELECTRON SCATTERING AT 180 DEG,

by P. Kossanyi-Demay, and G. J. Vanpraet. Oct 65, 30p. Rept. no. hepl-391
Contract Nonr-225 (67)

Unclassified report

Descriptors: (*Nuclear energy levels, Boron), (*Excitation, Nitrogen), (*Inelastic scattering, Electrons), Nuclear models, Nuclear properties, Bremsstrahlung

A study is made of nuclear energy states in B10, B11, and N14 by means of inelastic electron scattering at 180 deg. Radiation widths were derived for the excited states and the results are compared with the single particle model predictions. For the magnetic dipole transitions in B10 and B11 a comparison is made of the experimental data with recently calculated M1 transition strengths in p-shell nuclei by Cohen and Kurath. (Author)

AD-624 271 Fld. 20/8, 20/7
CFSTI Prices: HC $1.00 MF $0.50
HIGH ENERGY PHYSICS LAB STANFORD UNIV CALIF
BEAM INSTABILITIES IN THE PRINCETON-STANFORD STORAGE RINGS,
by W. C. Barber. Sep 65, 21p. Rept. no. hepl-406
Contract Nonr-225 (67) ,Nonr-1858 (39)

Unclassified report

Descriptors: (*Particle beams, Stability), (*Particle accelerators, Particle beams), Electrodes, Betatrons

The most salient features of the beam instabilities in the Princeton-Stanford storage rings are summarized. The phenomena are classified into three groups: (1) Vertical instabilities of a single beam; (2) Vertical instabilities associated with the interaction between two beams; (3) Changes in radial and azimuthal size of single beam.

AD-624 272 Fld. 20/8
CFSTI Prices: HC $1.00 MF $0.50
HIGH ENERGY PHYSICS LAB STANFORD UNIV CALIF
CHARGE DISTRIBUTIONS OF CA40 AND CA44 FROM 250 MEV ELECTRON SCATTERING,
by R. Hofstadter, G. K. Noldeke, K. J. van Oostrum, L. R. Suelzle, and M. R. Yearian. Sep 65, 12p. Rept. no. hepl-411
Contract Nonr-225 (67)

Unclassified report

Prepared in cooperation with General Motors Research Labs., Warren, Mich., and Illinois Univ., Urbana.

Descriptors: (*Nuclear structure, Calcium), (*Calcium, Isotopes), (*Elastic scattering, Electrons), Nuclear shell models, Nuclear properties, Excitation

New information is reported on differences between the charge distributions of Ca40 and of Ca44, obtained by means of elastic scattering of 250 MeV electrons. Attention is focused, experimentally and theoretically, on the difference in scattering between the two isotopes.

AD-624 277 Fld. 20/8
QUEEN'S UNIV BELFAST (NORTHERN IRELAND) DEPT OF APPLIED MATHEMATICS
THE IONIZATION OF INERT GAS ATOMS BY ELECTRON AND PROTON IMPACT AT HIGH ENERGIES,
by A. E. Kingston. 18 May 65, 11p. Contract N62558-4297

Unclassified report

Availability: Published in Proceedings of the Physical Society V86 P467-76 1965. Copies to DDC users only.

Descriptors: (*Ionization, Helium group gases), (*Electron bombardment, Ionization), (*Proton bombardment, Ionization), Probability, Wave functions, Charged particles, Energy, Hydrogen, Great Britain

At large impact energies E, the cross sections Q, for the electron or proton ionization of the inert gas atoms, are written in the form QE ! A log E + B. A is calculated using theoretical and experimental values of the photoionization cross sections. The calculated A's are in good agreement with the proton ionization of Hooper et al. but disagree with the electron ionization data of Schram et al. It is found that the electron ionization data of Golden and Rapp and of Smith are not sufficiently accurate to give reliable values for A. However, when the calculated values of A are normalized to these electron ionization data at impact energies between 20 and 30 atomic units estimates can be obtained for the B's which are in good agreement with the proton ionization data. These B's differ greatly from those of Schram et al. (Author)

AD-624 278 Fld. 20/8, 20/10
QUEEN'S UNIV BELFAST (NORTHERN IRELAND) DEPT OF APPLIED MATHEMATICS
EXCITATION OF NEUTRAL ATOMS BY ELECTRON IMPACT,
by D. Crothers, and R. McCarroll. 8 Jun 65, 10p. Contract N62558-4297

Unclassified report

Prepared in cooperation with Observatoire de Paris (France).

Availability: Published in Proceedings of the Physical Society V86 P753-61 1965. Copies to DDC users only.

Descriptors: (*Excitation, Atoms), (*Electron bombardment, Excitation), Probability, Electron transitions, Wave functions, Quantum mechanics, Hydrogen, Sodium

A method which takes account of electron-electron repulsion is proposed for calculating cross sections for the excitation of neutral atoms by electron impact. The method owes much to the recent work of Vainshtein, Presnyakov and Sobel'man, but differs from this latter in several important respects. At high energies, the new approximation converges to the Born approximation and, with the possible exception of the threshold region, the cross sections are smaller than the corresponding Born cross sections. The maximum is displaced considerably to higher energies, as compared with the Born maximum. Calculations for the 1s-2s and 1s-2p transitions in atomic hydrogen are in excellent agreement at intermediate and high energies with the experimental results of Fite et al. An unexpected characteristic of the theory is the prediction of a sharp maximum in the cross section just above the excitation threshold. In particular, the calculations in the threshold region for the 1s-2p transition in atomic hydrogen are in good accord with the recent observations of Chamberlain, Smith and Heddle. Results are also presented for the 3s-3p transition in sodium. (Author)

AD-624 298 Fld. 20/8, 20/7, 20/3
CFSTI Prices: HC $1.00 MF $0.50
STANFORD UNIV CALIF DEPT OF PHYSICS
ELECTRON SCATTERING EXPERIMENTS; MEASUREMENT OF TRANSMISSION OF 8.3-MEV NEUTRONS PRODUCED BY A VAN DE GRAAFF GENERATOR; MAGNETIZATION CURVE OF HOLMIUM.
Periodic status rept., 1 Jul-30 Sep 65,
by W. A. Little. 30 Sep 65, 3p. Contract Nonr-225 (86) Proj. PR-002-06-01

Unclassified report

Descriptors: (*Nuclear scattering, Electrons), (*Neutron beams, Van de Graaf generators), (*Magnetic properties, Holmium), Electron beams, Linear accelerators

A summary is given of research on electron scattering in holmium and neutron transmission using either the Stanford linear accelerator or a Van de Graaff accelerator.

AD-624 314 Fld. 20/8, 20/10
CFSTI Prices: HC $4.00 MF $0.75
CASE INST OF TECH CLEVELAND OHIO DEPT OF PHYSICS
HARTREE-FOCK CALCULATIONS OF FINITE NUCLEI.
Doctoral thesis,
by R. Muthukrishnan. Sep 65, 123p. Rept. no. tr-19
Contract Nonr-760 (15) Proj. NR-024-439

Unclassified report

Descriptors: (*Hartree-Fock approximation, Nuclei), (*Nuclei, Hartree-Fock approximation), Wave functions, S-matrix, Harmonic generators, Nuclear shell models, Nuclear structure, Nuclear scattering, Deuterons

A matrix formulation of the Hartree-Fock method is used to calculate properties of finite nuclei. The two-body interaction used is of the non-local separable type, which gives saturation. The s-wave interaction is chosen such as to give the energy and density of nuclear matter correctly and have small second-order corrections. Calculations are done for nuclei C12, O16, Si28, Ca40, Zn60, and Zr80 with the s-wave force. The single particle energies and wave functions are obtained. Since only the s-wave force is included there is no spinorbit splitting of the single particle levels. The closed shell nuclei O16, Ca40, and Zr80 are more bound than the non-closed shell nuclei C12, Si28, and Zn60. Calculations for C12 and Si28 are done with pure amisotropic harmonic oscillator functions as the wave functions and these nuclei prefer a deformed shape over spherical shape. The single particle levels are much deeper than what would be expected from a local single particle potential. This shows the strong non-locality of the single-particle potential. The properties of O16 and Ca40 are calculated with forces acting in both relative s and p states. (Author)

AD-624 318 Fld. 20/8
CFSTI Prices: HC $4.00 MF $1.00
ENRICO FERMI INST FOR NUCLEAR STUDIES UNIV OF CHICAGO ILL
QUASI-FREE PROTON SCATTERING IN LIGHT NUCLEI AT 460 MEV,
by H. Tyren, S. Kullander, O. Sundberg, R. Ramachandran, and P. Isacsson. 1965, 152p. Contract AF-AFOSR-18-64 AFOSR 65-1678

Unclassified report

Descriptors: (*Proton scattering, Nuclei), Nuclear spectroscopy, Nuclear energy levels, Wave functions, Nuclear models, Helium, Hydrogen, Lithium, Beryllium, Carbon, Boron, Nitrogen, Oxygen, Nuclear reactions

Quasi-free proton-proton scattering was studied in a number of light nuclei at 460 MeV using two large identical magnetic spectrometers with two-directional focusing and a multi-channel electronic detector system. The experiments are done in a symmetric geometry. Summed energy spectra and angular correlation distributions of separated components of the spectra are presented. The experimental results for the lighter nuclei are analyzed by comparing them with theoretical ones obtained on the basis of the distorted wave impulse approximation. Information on the radii and occupation numbers of the 1s and 1p orbitals in the nuclei considered is obtained. (Author)

AD-624 396 Fld. 20/8, 20/10
CFSTI Prices: HC $1.00 MF $0.50
RIO GRANDE DO SUL UNIV PORTO ALEGRE (BRAZIL) INSTITUTO DE FISICA
APPLICATION OF METHODS COMMON TO ELEMENTARY PARTICLE PHYSICS AND MANY-BODY PROBLEMS.

Rept. no. 1 (final) rept. 15 May 64-14 Nov 65, by Gerhard Jacob. Nov 65, 10p. Contract DA-ARO-49-092-64-G53

Unclassified report

See also AD-624 397, AD-624 398, AD-624 399, AD-624 400.

Descriptors: (*Elementary particles, N-body problem), (*N-body problem, Elementary particles), Nuclear structure, Nuclear scattering, Relaxation time, Quantum mechanics, Field theory, Fermions, Electrons, Muons, Brazil

Work in progress is summarized. Papers on following subjects have been or are being published: Nonspherical Nuclei; Quasi-Free Scattering and Nuclear Structure; Width of nuclear-hole states; Single hole energies; Relaxation effects in angular correlations; Quantum Electrodynamics with Zero Bare Fermion Mass; Generalization of Landau Gauge; Broken Symetries and Electron-Muon Problem (I and II); Length Scale in Quantum Electrodynamics without a Bare Mass.

AD-624 397 Fld. 20/8, 20/10, 12/1
RIO GRANDE DO SUL UNIV PORTO ALEGRE (BRAZIL) INSTITUTO DE FISICA
A GENERALIZATION OF THE LANDAU GAUGE,
by A. J. Maris, V. E. Herscovitz, and G. Jacob. 16 Apr 64, 7p. Contract DA-ARO-49-092-64-53

Unclassified report

Availability: Published in Il Nuovo Cimento, V33 N10 P1633-8 Sep 16 1964. Copies to DDC users only.

Descriptors: (*Field theory, Transformations (Mathematics)), (*Transformations (Mathematics), Field theory), Integral equations, Quantum mechanics, Electrons, Photons

A gauge was derived in which the gamma p-part of the self-energy integral for the electron with arbitrary photon and electron propagators, vanishes identically. For the special case of the free photon propagator this diagonalizing gauge is the Landau gauge. Using this generalized Landau gauge the Dyson equation for the electron propagator reduces to an integral equation for one scalar function. (Author)

AD-624 398 Fld. 20/8, 20/10
RIO GRANDE DO SUL UNIV PORTO ALEGRE (BRAZIL) INSTITUTO DE FISICA
QUANTUM ELECTRODYNAMICS WITH ZERO BARE FERMION MASS,
by Th. A. J. Maris, Victoria E. Herscovitz, and Gerhard Jacob. 10 Feb 64, 3p. Contract DA-ARO-49-092-64-G53

Unclassified report

Availability: Published in Physical Review Letters, V12 N11 P313-5 Mar 16 1964. Copies to DDC users only.

Descriptors: (*Field theory, Fermions), (*Fermions, Quantum mechanics), Perturbation theory, Integral equations, Mass number

It is shown that the logarithmic divergence of the fermion self-mass in lowest order perturbation theory of quantum electrodynamics disappears if the approximation is sufficiently improved and the bare fermion mass is assumed to be zero.

AD-624 399 Fld. 20/8, 20/10
RIO GRANDE DO SUL UNIV PORTO ALEGRE (BRAZIL) INSTITUTO DE FISICA
THE LENGTH SCALE IN QUANTUM ELECTRODYNAMICS WITHOUT A BARE MASS,
by A. J. Maris, V. E. Herscovitz, and G. Jacob. 24 Oct 64, 14p. Contract DA-ARO-49-092-64-G53

Unclassified report

Availability: Published in Il Nuovo Cimento (Ser10) V38 P783-95 1965. Copies to DDC users only.

Descriptors: (*Field theory, Charged particles), (*Charged particles, Quantum mechanics), Mass number, Leptons, Perturbation theory, Transformations (Mathematics), Invariance

A definite length scale in Quantum Electrodynamics without a bare mass can only be induced by a coupling with another system. This problem is studied in a model consisting of one charged 'neutrino' field and charged strongly interacting particle fields. A criterion is derived which is similar to the principle of extremalization of the energy in Mechanics. The approximation used alloys only the conclusion that the ratio between the lepton mass and the strongly interacting particle masses is not of zeroth order in the renormalized electromagnetic coupling constant. (Author)

AD-624 400 Fld. 20/8, 20/10
RIO GRANDE DO SUL UNIV PORTO ALEGRE (BRAZIL) INSTITUTO DE FISICA
BROKEN SYMMETRIES AND THE ELECTRON-MUON PROBLEM,
by Th. A. J. Maris, V. E. Herscovitz, and G. Jacob. 28 Apr 64, 11p. Contract AD-ARO-49-092-64-G53

Unclassified report

Availability: Published in Il Nuovo Cimento (Ser10) V34 P946-55 1964. Copies to DDC users only.

Descriptors: (*Field theory, Electrons), (*Electrons, Muons), Mass number, Quantum mechanics, Transformations (Mathematics), Invariance, Fermions

The fermion propagators in the quantum electrodynamics of the combined fields of electrons and muons with zero bare masses have been investigated. The basic theory possesses various symmetry properties which are not present in the vacuum. This results in a nonuniqueness of the mathematical description, and equivalence classes for the fermion propagators have been defined. In the approximation used it has been shown that a meaningful vacuum correlation of the two lepton fields is incompatible with an exactly parity invariant vacuum. (Author)

AD-624 497 Fld. 20/8
CFSTI Prices: HC $2.00 MF $0.50
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF
GAMMA RAYS FROM (N, N'GAMMA RAYS) INTERACTIONS OF 2.8 MEV NEUTRONS WITH MAGNESIUM, ALUMINUM, SILICON, TITANIUM AND IRON,
by Ferdinand C. Engesser, and William E. Thompson. 4 Oct 65, 35p. Rept. no. usnrdl-TR-916 Proj. SF-011-05-11 Task 0500 ,06.011

Unclassified report

Descriptors: (*Gamma-neutron reactions, Metals), (*Gamma emission, Neutron reactions), Gamma-ray cross sections, Excitation, Aluminum, Magnesium, Silicon, Titanium, Iron, Inelastic scattering, Neutron scattering, Nuclear energy levels

The gamma rays resulting from (n, n' gamma ray) interactions of 2.8 MeV neutrons with the nuclei of the elements magnesium, aluminum, silicon, titanium and iron have been investigated. Cross sections for the production of many of these gamma rays are reported. The most important gamma ray from each element is found to have the following elemental production cross section in millibarns per steradian at 90 = 20 deg: 1.37 MeV gamma ray from Mg, 35.2 = 4.0; 1.01 MeV gamma ray from Al, 19.8 = 2.2; 1.78 MeV gamma ray from Si, 41.0 = 4.9; 0.99 MeV gamma ray from Ti, 74.0 = 9.0; and 0.85 MeV gamma ray from Fe, 96.5 = 11.5. Further, it is shown that a correlation appears to exist between the reduced quadrupole transition probability of a nuclear state and the excitation of that state by neutron inelastic scattering. (Author)

AD-624 518 Fld. 20/8
CFSTI Prices: HC $1.00 MF $0.50
MICHIGAN UNIV ANN ARBOR DEPT OF PHYSICS
THE USE OF COSMIC RAYS TO STUDY PHYSICS IN THE RANGE 100-1000 GEV.
Technical rept.,
by Lawrence W. Jones. Oct 65, 15p. Rept. no. 03106-21-T
Contract Nonr-1224 (23) Proj. ORA-03106

Unclassified report

Descriptors: (*Cosmic rays, Particle accelerator techniques), (*Particle accelerator techniques, Cosmic rays), (*Nuclear physics, Cosmic rays), Physics laboratories, Nuclear reactions, Radiation measurement systems

AD-624 631 Fld. 20/8
STANFORD UNIV CALIF DEPT OF PHYSICS
0 DEGREE YIELD OF GAMMA RAYS IN THE T (P,GAMMA) 4 HE REACTION.
by R. Shrack, D. Kohler, N. G. Puttaswamy, and W. E. Meyerhof. 9 Aug 65, 4p. Contract DA-ARO (D)-31-124-G337 AROD 3269:17

Unclassified report

Availability: Published in physics letters V18 N3 P327-9 Sep 1 1965. Copies to DDC users only.

Descriptors: (*Proton capture, Tritons), (*Gamma emission, Helium). Alpha cross sections, Nuclear energy levels, Gamma-ray spectra

The 0 degree yield of the T (p, gamma) reaction was determined as a means of studying higher lying states of 4 He, since it selects the triplet T + p interactions.

AD-624 637 Fld. 20/8
YALE UNIV NEW HAVEN CONN
APPLICATIONS OF THE EXACTLY SOLUBLE ONE DIMENSIONAL MODEL OF TRANSFER REACTIONS,
by G. H. Herling, and Y. Nishida. 4 Jun 65, 16p. Contract DA-ARO (D)-31-124-G607 Proj. DA-893-P AROD 893:10

Unclassified report

Availability: Published in annals of Physics V34 P400-14 Oct 1965. Copies to DDC users only.

Descriptors: (*Nuclear reactions, Mass transfer), (*Nucleons, Potential theory), Quantum mechanics, Nuclear forces,. Nitrogen, Magnesium, Isotopes, Nuclear models, Probability

An attempt is made to apply the one dimensional exactly soluble model of transfer reactions proposed by Breit in 1960 and discussed by him in the preceding paper to the consideration of nucleon tunneling calculations made in the semiclassical approximation employing the energy matrix formulation of Breit and Ebel. The exact expression for the transfer probability in the case of one fixed potential and the secnd potential reversing its motion is arranged in combined powers of the barrier penetrabilities of the two regions of negative kinetic energy around each of the potentials. Through an application of different Galilean transformations to the elementary solutions entering the problem just mentioned before and after the reversal of the motion, a solution corresponding to the assumption of equal masses of the heavy nuclear aggregates throughout the process is worked out and the series for the transition probability is rearranged in powers of barrier penetrability as in the first problem. Different ways of adjusting the parameters of the model to those of the actual three dimensional problem are tried in the case

of the N14 (N14, N13)N15 and of the Mg24 (N14, N13)Mg25 reactions. Parametrizations based on simulating barrier penetrability effects lead to fair although not perfect agreement with the energy matrix calculations. (Author)

AD-624 638 Fld. 20/8
YALE UNIV NEW HAVEN CONN
A SOLUBLE SEMICLASSICAL PARTICLE TRANSFER PROBLEM,
by G. Briet. 4 Jun 65, 23p. Contract AF-AFOSR-394-64 ,DA-ARO (D)-31-124-G607 Proj. DA-893-P AROD 893:101
Unclassified report

Availability: Published in annals of Physics V34 N3 P377-99 Oct 1965. Copies to DDC users only.

Descriptors: (*Nucleons, Potential theory), (*Mass transfer, Nuclear reactions), Nuclear particles, Transport properties, Wave functions, Iterative methods, Probability, Series

The one dimensional semiclassical transfer problem presented by two delta-function potentials approaching each other with uniform velocities before a certain time and receding from each other again with uniform velocities in the infinite future admits of an exact solution. A systematic iterative construction is described and the properties of the solution are compared with those of solutions obtained by two approximate methods. The first of these is the 'energy matrix' approximation used by Breit and Ebel in calculations on the N14 (N14, N13) N15 reaction. The second is similar to it in that only two out of an infinity of expansion functions are used in the expansion of the time dependent wave function. Instead of employing linear combinations of adiabatic wave functions, however, the second method of approximation employs expansion functions which are eigenfunctions for each of the two potentials in its own Galilean frame. The exact solution gives transition probabilities in reasonable agreement with the approximations within limits explicable by the character of the approximations. (Author)

AD-624 333 **See Fld. 7/4**

AD-624 354 **See Fld. 7/4**

AD-624 378 **See Fld. 7/4**

AD-624 427 **See Fld. 11/7**

AD-624 486 **See Fld. 20/9**

20/9. PLASMA PHYSICS

AD-624 356 Fld. 20/9, 20/14
RESEARCH LAB OF ELECTRONICS MASS INST OF TECH CAMBRIDGE
MICROWAVE SCATTERING DUE TO ACOUSTICION-PLASMA-WAVE INSTABILITY,
by V. Arunasalam, and Sanborn C. Brown. 17 May 65, 9p. Contract DA-36-039-AMC-03200 (E) ,AT (30-1)-1842
Unclassified report

Availability: Published in the Physical Review, V140 N2A PA471-9 Oct 18 1965. Copies to DDC users only.

Descriptors: (*Plasma oscillations, Microwaves), (*Microwaves, Scattering), Ions, Electrons, Velocity, Damping, Acoustic properties, Stability, Dielectric properties

An analysis is presented of an experimental study of microwave scattering from nonequilibrium plasmas in which the electrons had a large steady drift velocity with respect to the ions. According to theory, such plasmas must support 'relatively undamped' acousticion-plasma waves due to a two-stream instability type of mechanism. Measurements of the frequency-power spectrum of the scattered signal show agreement with theory. In particular, as predicted, the measured scattering cross sections were large in comparison with the Thomson cross section. The effects of collisions predicted by theory did not show up in the experimental results. As expected from theoretical considerations of nonlinear effects (such as the nonlinear coupling between the plasma modes of different wave numbers), the relative drift velocity and the electron-ion temperature ratio tend toward a saturation value as the plasma current is increased. The experimental results indicate that the nonlinear effects are relatively weak. (Author)

AD-624 357 Fld. 20/9
RESEARCH LAB OF ELECTRONICS MASS INST OF TECH CAMBRIDGE
LOW-FREQUENCY INSTABILITY OF PARTIALLY IONIZED PLASMA,
by David L. Morse. 11 May 64, 8p. Contract DA-36-039-AMC-03200 (E) Grant ,NSF-G-24073
Unclassified report

Availability: Published in the Physics of Fluids, V8 N7 P1339-46 Jul 1965. Copies to DDC users only.

Descriptors: (*Plasma medium, Stability), Frequency, Magnetic fields, Ionization, Density, Functions, Electric fields, Mathematical analysis, Perturbation theory

The stability of a partially ionized plasma in a magnetic field is investigated. The electron and ion flow equations and continuity equations are used to describe low-frequency, macroscopic variations of plasma density and space potential. The solutions to the linearized forms of these equations consist of a set of eigenfunctions of perturbed density, and a complex frequency eigenvalue corresponding to each perturbed density eigenfunction. It is found that rotating 'flutelike' density perturbations may grow when a steady radial electric field is present, either parallel or antiparallel to the unperturbed density gradient. The growth rate is proportional to a 'corrected' electric field, which includes the time-invariant gradients of both density and space potential. The stabilizing effects of diffusion, parallel and perpendicular to the magnetic field, are considered. (Author)

AD-624 375 Fld. 20/9, 7/4, 4/1
CALIFORNIA UNIV LOS ANGELES DEPT OF CHEMISTRY
INTENSE 584-A LIGHT FROM A SIMPLE CONTINUOUS HELIUM PLASMA,
by C. A. Jensen, and W. F. Libby. 23 Mar 64, 8p. Contract AF-AFOSR-245-64 AFOSR 65-1665
Unclassified report

Availability: Published in the Physical Review, V135 N5A PA1247-52 Aug 31 1964. Copies to DDC users only.

Descriptors: (*Plasma medium, Helium), (*Ultraviolet radiation, Plasma medium), Line spectrum, Intensity, Ionization, Monochromatic light, Solar radiation, Planetary atmospheres

A simple source for the production of continuous cold plasmas and intense line spectra associated with a particular gas is described in its application to helium. Plasma densities and temperatures have been measured spectroscopically. When using helium or neon gas the device becomes an intense source of ionizing radiation for studies of the chemical reactions induced by the ionizing ultraviolet. The intensity of this radiation has been measured with reasonable accuracy by very simple photocells which are easily constructed in the laboratory and are only sensitive to vacuum-ultraviolet radiation; more than 10 to the 16th power 584-A photons per second are emitted by a 30-W source. The mechanism is via ionelectron recombination from a 1660K plasma of approximately 10 to the 13th power ions/cc density. (Author)

AD-624 486 Fld. 20/9, 20/3, 20/8
CFSTI Prices: HC $7.00 MF $1.75
AEROJET-GENERAL NUCLEONICS SAN RAMON CALIF
RESEARCH IN HIGH TEMPERATURE PLASMAS FOR SPACE APPLICATIONS. VOLUME II. ENGINEERING.
Annual rept.,
by John S. Luce. Oct 64, 397p. Rept. no. an-1255-Vol-2
Contract AF33 (657)-11183 Proj. AF-5350 Task 535001
APL TDR-64-124-Vol-2
Unclassified report

See also AD-608 379.

Descriptors: (*Magnetohydrodynamics, Electromagnets), (*Plasma physics, Electromagnets), (*Electromagnets, Plasma physics), (*Thermonuclear reactions, Control), Space propulsion, High-temperature research, Nuclear engineering, Plasma medium, Containment, Magnetic pinch, Magnetic fields, Thermodynamics, Copper, Coils, Liquified gases, Coolants

The purpose of the work described in this volume is to provide the engineering analysis and design of a mirror-cusp magnetic bottle for plasma physics experiments. The original design concept and experiments were described in AGN Report AN-1103 (November 1963). The principal design requirements were: maximum field of 50 kgauss; mirror ratio of 2; alpha of 1.4; containment volume of 2 ft diameter x 8 ft length; and dynamic vacuum of 10 to the minus 8th power torr. The principal design problems were heat transfer, pressure drop, and mechanical stresses. Each of these problems was analyzed with accepted engineering formulae. A design was obtained having a safety factor of 3 to yield, except the axial coil winding, which has a safety factor of 2.2 to yield. The complete unit weights 80 tons and is composed of hand-drawn ETP copper windings and a 304 stainless steel structure. Water-methanol or liquid nitrogen can be used for coolant. (Author)

AD-624 506 Fld. 20/9, 20/3
CFSTI Prices: HC $4.00 MF $0.75
CORNELL UNIV ITHACA N Y GRADUATE SCHOOL OF AEROSPACE ENGINEERING
ELECTROHYDRODYNAMIC FLOW OVER A WAVY WALL.
Scientific rept.,
by S. Kuwabara. Jun 65, 118p. Contract AF-AFOSR-399-64 Proj. AF-9781 Task 9781-01 AFOSR 65-1768
Unclassified report

Descriptors: (*Plasma physics, Electric fields), (*Electric fields, Plasma physics), (*Gas flow, Perturbation theory), Walls, Subsonic flow, Supersonic flow

Electrohydrodynamic flow of a simple, isothermal gas without dissipative effects over a wavy wall is investigated by the perturbation method. The unperturbed flow has a uniform velocity and nonuniform distributions of density and electric field which vanish at infinity. For the subsonic flow, the surface pressure the stream lines and the electric-field lines are calculated. For the supersonic flow, the linearized solution diverges at infinity. This seems to be due to the non-uniform density distribution of the undisturbed flow. Numerical solutions of an oscillating-piston problem which is a simplified model for the high supersonic flow, are obtained. Some related problems are also investigated. (Author)

AD-624 563 Fld. 20/9, 20/4, 7/4
CFSTI Prices: HC $1.00 MF $0.50
TRW SYSTEMS REDONDO BEACH CALIF PHYSICAL ELECTRONICS LAB
ELECTROFLUID HYPERSONIC RESEARCH.
Quarterly rept. no. 1,
by S. M. Zivi. 23 Jul 65, 23p. Rept. no. 4436-6002-SU-000
Contract AF33 (615)-2118
Unclassified report

Descriptors: (*Plasma generators, Electric fields), (*Gas discharges, Hypersonic flow), Acceleration, Electrostatics, Nozzles, Ions, Condensation, Charged particles, Vaporization

The purpose of the research is to determine the feasibility of producing a continuous hypersonic flow of air by the electrostatic acceleration of charged frozen air particles, with the subsequent vaporization of these particles.

AD-624 564 Fld. 20/9, 20/4, 7/4
CFSTI Prices: HC $2.00 MF $0.50
TRW SYSTEMS REDONDO BEACH CALIF PHYSICAL ELECTRONICS LAB
ELECTROFLUID HYPERSONIC RESEARCH.
Quarterly rept. no. 2,
by B. Marcus, and S. M. Zivi. 11 Oct 65, 35p.
Rept. no. trws-PEL-4436-6003-SU-000
Contract AF33 (615)-2118
Unclassified report

Descriptors: (*Plasma generators, Electric fields), (*Gas discharges, Hypersonic flow), Nozzles, Drops, Condensation, Nucleation, Hypersonic wind tunnels, Particles

The report concerns the analysis of condensation and droplet growth in the nozzle, the separation of the two charged species, and the problem of pumping out the uncondensed gas to a low enough pressure that the required electrical fields can be attained without breakdown.

AD-624 604 Fld. 20/9
CFSTI Prices: HC $2.00 MF $0.50
ILLINOIS UNIV URBANA COORDINATED SCIENCE LAB
ION OSCILLATIONS IN A WEAKLY TURBULENT PLASMA,
by Yoshi H. Ichikawa. Nov 65, 39p. Rept. no. r-271
Contract DA-28-043-AMC-0073 (E) Proj. DA-20014501A31F
Unclassified report

Descriptors: (*Plasma oscillations, Turbulence), Ions, Electrons, Feedback, Acoustic properties, Mathematical analysis, Low frequency, Linear systems

Ion oscillations in a high temperature electron-ion plasma with high frequency turbulent fluctuations are investigated by generalizing the quasi-linear theory to a spatially inhomogeneous system. It is found that the feedback effect of the high frequency fluctuation on the low frequency oscillation in the system gives rise to a parametric growth of the ion acoustic mode even if the system has a stable velocity distribution with respect to the ion acoustic mode. (Author)

AD-624 667 Fld. 20/9
CFSTI Prices: HC $4.00 MF $0.75
TENNESSEE UNIV KNOXVILLE
A FREDHOLM INTEGRAL EQUATION SOLUTION FOR VARIABLE CONDUCTIVITY MAGNETOHYDRODYNAMIC CHANNEL FLOW.
Master's thesis,
by Jimmie Don Young. Dec 65, 112p. Contract AF33 (608)-1281
Unclassified report

Descriptors: (*Magnetohydrodynamics, Integral equations), Conductivity, Differential equations, Electrical conductance

It is the purpose of this study (1) to obtain a set of equations, that when solved, will give an approximate solution for the velocity profile for arbitrary conductivity variation, and (2) to verify the approximate method by comparing the approximate solutions to exact solutions for the same parameters.

AD-624 789 Fld. 20/9, 7/4
CFSTI Prices: HC $1.00 MF $0.50
MARYLAND UNIV COLLEGE PARK DEPT OF PHYSICS AND ASTRONOMY
EXPERIMENTAL PROGRAM.
Status rept., 1 Sep-30 Nov 65,
by Hans R. Griem. 30 Nov 65, 7p. Contract Nonr-595 (10)
Unclassified report

Descriptors: (*Plasma medium, Spectroscopy), (*Spectroscopy, Plasma medium), Line spectrum, Electrooptics, Perturbation theory, Ultraviolet radiation, Shock waves, Light, Scattering

Contents: Measuring of Stark broadening of lines from light elements; UV radiation from shock-heated plasmas; Collisionless plasma shockwave experiment; Plasma diagnostics by light scattering.

AD-624 835 Fld. 20/9
CFSTI Prices: HC $1.00 MF $0.50
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
STUDYING CONDUCTIVITY OF PLASMA IN A TRANSVERSE MAGNETIC FIELD,
by A. V. Nedospasov, and I. Ya. Shipuk. 17 Nov 65, 13p. Rept. no. ftd-TT-65-1610
TT 65-64801
Unclassified report

Unedited rough draft trans. of Teplofizika Vysokikh Temperatur (USSR) v3 n2 p186-91 1965.

Descriptors: (*Plasma medium, Electrical conductance), (*Magnetohydrodynamics, Plasma medium), Magnetic fields, Conductivity, Electrons, Hall effect, Magnetohydrodynamic generators, USSR

Two independent methods are used to investigate experimentally the dependence of the effective conductivity of plasma on the Larmor frequency of electrons.

AD-624 581 **See Fld. 22/1**

AD-624 714 **See Fld. 7/4**

20/10. QUANTUM THEORY

AD-624 417 Fld. 20/10
COLUMBIA UNIV NEW YORK
THE ACTUAL MASS OF POTENTIAL ENERGY, A CORRECTION TO CLASSICAL RELATIVITY,
by L. Brillouin. 31 Dec 64, 8p. Contract Nonr-266 (56)
Unclassified report

See also AD-624 418.

Availability: Published in Proceedings of the National Academy of Sciences V53 N3 P475-82 Mar 1965. Copies to DDC users only.

Descriptors: (*Potential energy, Mass-energy relation), (*Mass-energy relation, Potential energy), Relativity theory, Field theory, Transformations (Mathematics)

The meaning of potential energy in relativity, and the application of E=mc-sq. to potential energy are discussed. The relation of field theory to relativity, and the problem of localizing the mass of potential energy are considered.

AD-624 418 Fld. 20/10
COLUMBIA UNIV NEW YORK
THE ACTUAL MASS OF POTENTIAL ENERGY, II,
by L. Brillouin. 14 Apr 65, 5p. Contract Nonr-266 (56)
Unclassified report

See also AD-624 417.

Availability: Published in Proceedings of the National Academy of Sciences V53 N6 P1280-4 Jun 1965. Copies to DDC users only.

Descriptors: (*Potential energy, Mass-energy relation), (*Mass-energy relation, Potential energy), Relativity theory, Potential theory, Mechanics

Problems arising at the function of classical and relativistic mechanics are considered. Ambiguities in special relativity applied to systems of particles and to electromagnetism are discussed.

AD-624 816 Fld. 20/10, 12/1
CFSTI Prices: HC $2.00 MF $0.50
MARYLAND UNIV COLLEGE PARK INST FOR FLUID DYNAMICS AND APPLIED MATHEMATICS
ON THE DEFINITION OF STATES IN QUANTUM STATISTICAL MECHANICS.
Technical note,
by Gerard G. Emch. Nov 65, 32p. Rept. no. tn-BN-423
Contract Nonr-595 (22)
Unclassified report

Descriptors: (*Statistical mechanics, Quantum mechanics), (*Measure theory, Statistical mechanics), Quantum statistics, Hamiltonian, Operators (Mathematics)

The controversy relative to the use of normal states in quantum physics is discussed in the light of ergodic theory. The nature of the spectrum of the Hamiltonian is shown to play a central role in the decision to enlarge the ordinary frame provided by the traditional densitymatrix formalism. The connection of these considerations with the infinite-time, infinite-volume limits in non-equilibrium statistical mechanics is pointed out. (Author)

AD-624 278 **See Fld. 20/8**

AD-624 314 **See Fld. 20/8**

AD-624 396 **See Fld. 20/8**

AD-624 397 **See Fld. 20/8**

AD-624 398 **See Fld. 20/8**

AD-624 399 **See Fld. 20/8**

AD-624 400 **See Fld. 20/8**

AD-624 718 **See Fld. 20/3**

AD-624 720 **See Fld. 20/3**

AD-624 721 **See Fld. 20/3**

20/11. SOLID MECHANICS

AD-624 367 Fld. 20/11
NORTHWESTERN UNIV EVANSTON ILL
RESPONSE OF A CYLINDRICAL SHELL TO AN ELASTIC WAVE,
by Michael J. Forrestal, Dronnadula V. Reddy, and George Herrmann. 1965, 12p. Contract DA-ARO (D)-31-124-G623 AROD 4550:3
Unclassified report

Availability: Published in Journal of the Engineering Mechanics Division, Proceedings of the American Society of Civil Engineers, V91 NEM3 P1-11 Jun 1965. Copies to DDC users only.

Descriptors: (*Structural shells, Cylindrical bodies), (*Mechanical waves, Structural shells), Elasticity, Stresses, Equations of motion, Approximation (Mathematics)

An accurate, approximate formula for the dilatational mode of the shell for the cylindrical shell-elastic medium interaction problem was devel-

oped. Exploratory studies indicated that the techniques used in the analysis could not be extended to higher modes; but, because only the modes n = 0, 2 contribute the the maximum shell stresses, part of the extensive numerical calculations can be substantially reduced by the approximate solution. (Author)

AD-624 379 Fld. 20/11
PENNSYLVANIA STATE UNIV UNIVERSITY PARK DEPT OF ENGINEERING MECHANICS
TRANSIENT ANALYSIS OF OBLIQUE IMPACT ON PLATES,
by N. Davids, and W. Lawhead. 25 Jan 65, 15p. Contract DA-31-124-ARO (D)-67 AROD 3842:5
Unclassified report

Prepared in cooperation with HRB-Singer, Inc., State College, Pa.

Availability: Published in Journal of the Mechanics and Physics of Solids, V13 P199-212 1965. Copies to DDC users only.

Descriptors: (*Metal plates, Impact shock), (*Stresses, Propagation), Elasticity, Loading (Mechanics), Mathematical analysis

An analysis is presented of the propagation of stress waves from a unit step impact pulse concentrated obliquely at a point on the upper surface of an infinite elastic plate whose thickness is of the order of magnitude of a wave length. An expansion method of Cagniard is employed to separate successively reflected waves of increasing time delay. The problem of performing a Laplace transform and its inversion is solved by use of Cagniard's artifice. Stress expressions and sets of numerical principal stress values are obtained for the stress state at points along the z-axis, for oblique angles of incidence of 30 degrees respectively and 60 degrees respectively. Stress surfaces are drawn to depict the principal stress state variation with time and the jump discontinuity wave fronts signalling respective wave arrivals. (Author)

AD-624 403 Fld. 20/11
TOWNE SCHOOL OF CIVIL AND MECHANICAL ENGINEERING UNIV OF PENNSYLVANIA PHILADELPHIA
VISCOELASTIC BEHAVIOR OF HETEROGENEOUS MEDIA,
by Zvi Hashin. 1965, 7p. Contract Nonr-551 (42) ,DA-31-124-ARO (D)-194 AROD 4752:2
Unclassified report

Availability: Published in Journal of Applied Mechanics Sep 1965. Copies to DDC users only.

Descriptors: (*Viscoelasticity, Theory), Mechanical properties, Stresses, Strain (Mechanics), Mathematical analysis, Creep

The macroscopic viscoelastic behavior of linear viscoelastic heterogeneous media is defined in terms of effective relaxation moduli and creep compliances. It is shown that these effective relaxation and creep functions are related to effective elastic moduli of elastic heterogeneous media by the correspondence principle of the theory of linear viscoelasticity. This analogy is applied to the determination of macroscopic behavior of some special kinds of viscoelastic heterogeneous media, in dilatation and shear. (Author)

AD-624 442 Fld. 20/11, 20/1, 13/10
CFSTI Prices: HC $2.00 MF $0.50
APPLIED TECHNOLOGY ASSOCIATES INC RAMSEY N J
THE EFFECT OF STRUCTURAL DAMPING ON THE ACOUSTICAL FIELD SURROUNDING A SUBMERGED VIBRATING SANDWICH SHELL,
by I. W. Jones, and V. L. Salerno. Sep 65, 38p. Rept. no. ata-106
Contract Nonr-4674 (00)
Unclassified report

Descriptors: (*Structural shells, Vibration), (*Underwater sound, Structural shell), (*Damping, Underwater sound), Equations of motion, Partial differential equations, Sandwich construction

This report utilizes the damped sandwich shell theory developed by the authors in a previous paper as a basis for a study of the behavior of a damped sandwich cylinder vibrating symmetrically while submerged in an infinite fluid medium. The influences of 'added mass' and hydrodynamic damping as well as structural damping on both the radial motion of the shell and, more importantly, on the sound pressure level in the medium are included in the equations. These phenomena are then examined quantitatively in numerical examples. It is shown that the pressure in the medium due to vibration in axisymmetric modes can be reduced by the use of a damped sandwich shell rather than a homogeneous shell of the same weight. (Author)

AD-624 611 Fld. 20/11, 20/5, 9/1
CFSTI Prices: HC $3.00 MF $0.75
LINCOLN LAB MASS INST OF TECH LEXINGTON
SOLID STATE RESEARCH.
Quarterly technical summary for 1 May-31 Jul 65, by Harry C. Gatos. 15 Aug 65, 87p. Contract AF19 (628)-5167 Proj. AF-649L ESD TDR-65-31
Unclassified report

See also AD-622 446.

Descriptors: (*Solid state physics, Reviews), (*Lasers, Solid state physics), (*Materials, Solid state physics), (*Semiconductor devices, Lasers), Semiconductors, Theory, Band theory of solids, Magnetism, Microwaves, Plasma physics, Magneto-optic effect, Single crystals, Crystal growth, Luminescence, Physical properties, Phase studies

The report covers in detail the solid state research work at Lincoln Laboratory for the period 1 May 1965 through 31 July 1965. The topics covered are Solid State Device Research, Laser Research, Materials Research, and Physics of Solids. (Author)

AD-624 644 Fld. 20/11, 11/6
CFSTI Prices: HC $2.00 MF $0.50
LOCKHEED MISSILES AND SPACE CO SUNNYVALE CALIF
BUCKLING STRENGTH OF CURVED BERYLLIUM PANELS IN COMPRESSION,
by M. J. Rebholz. 1964, 32p. Contract AF04 (695)-191
Unclassified report

Prepared for presentation at the International Symposium on Beryllium Metallurgy and Technology at the Franklin Inst., Philadelphia, Pa., on 15-17 Oct 64.

Descriptors: (*Panels (Structural), Compressive properties), (*Beryllium, Buckling (Mechanics)), (*Buckling (Mechanics), Panels (Structural)), Spacecraft, Loading (Mechanics), Tests

The panel tests described were part of a development program for the use of beryllium. The forward structure of the Agena spacecraft was redesigned to use crossrolled beryllium sheet as structural panels. Three different methods were used to fabricate twenty unstiffened and three stiffened, curved, beryllium panels. These panels were tested under axial compression loading to determine their critical buckling stress and to verify the design analysis. The paper presents test results and compares them with analytical values found by a semi-empirical method developed in recent NASA studies. (Author)

AD-624 686 Fld. 20/11
CFSTI Prices: HC $3.00 MF $0.50
MASSACHUSETTS INST OF TECH CAMBRIDGE
TWIST BUCKLING OF COIL SPRINGS OF VARIOUS WIRE CROSS SECTIONS.
Master's thesis,
by Mont Hubbard,Jr.. Aug 65, 56p. Contract AF33 (608)-1249
Unclassified report

Descriptors: (*Springs, Buckling (Mechanics)), Wire, Theory, Loading (Mechanics)

The problem of torsional buckling of springs with built-in end conditions is investigated and a theoretical buckling load and buckling shape of the spring are found. The buckling condition is then expressed in terms of acritical windup angle for springs of different wire cross sections. Both circular and rectangular cross sections are investigated. Some test results are given which tend to substantiate both the theoretical buckling load above and the theory of dependence of buckling on the b/h ratio for rectangular cross sections. (Author)

AD-624 758 Fld. 20/11
CFSTI Prices: HC $1.00 MF $0.50
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
ON THE RATE OF SPREADING OF FATIGUE CRACKS,
by Yu. D. Sofronov. 19 Nov 65, 23p. Rept. no. ftd-MT-64-434
TT 65-64789
Unclassified report

Edited machine trans. of Aviatsionnyi Institut, Kazan. Trudy (USSR) v77 p130-47 1963.

Descriptors: (*Fracture (Mechanics), Alloys), USSR, Steel, Fatigue (Mechanics), Rupture

Data of Tests show that fatigue crack may develop during stresses considerably below the fatigue limit. There exists a minimum value of amplitudes of oscillations, below which fatigue crack does not spread. The history of the loadings and the magnitude of overload up to the moment of formation of the crack practically do not affect the rate of its spreading. The established law-governing principles are verified by experimental data. The terminal period in development of crack does not obey the principles being proposed. As a result of processing the experimental data law-governing principles of the spreading of fatigue cracks are obtained. (Author)

AD-624 800 Fld. 20/11
CFSTI Prices: HC $2.00 MF $0.50
REDSTONE SCIENTIFIC INFORMATION CENTER REDSTONE ARSENAL ALA
LYAPUNOV'S METHOD OF INVESTIGATING THE STABILITY OF MOTION OF RIGID BODIES WITH LIQUID-FILLED CAVITIES,
by V. V. Rumyantsev. Nov 65, 48p. Rept. no. RSIC-473
TT 65-64794
Unclassified report

Trans. of Akademiya Nauk SSSR. Izvestiya. Mekhanika i Mashinostroenie, n6 p119-40 1963.

Descriptors: (*Equations of motion, Stability), Differential equations, Mechanics, Rotation, Liquids, Perturbation theory, Ellipsoids, Motion, USSR

A survey and discussion are given of nonlinear methods for investigation of the stability of stationary motions of rigid bodies with liquid-filled cavities. Lyapunov's method differs considerably from the methods of linear theory, and, being mathematically rigorous, makes it possible to obtain sufficient effective conditions for stability in a whole series of cases. (Author)

AD-624 382 See Fld. 11/9

AD-624 383 See Fld. 20/2

AD-624 427 See Fld. 11/7

AD-624 432 See Fld. 11/9

AD-624 572 See Fld. 11/4

AD-624 591 See Fld. 13/9

AD-624 647 See Fld. 6/16

AD-624 851 See Fld. 12/1

20/12. SOLID STATE PHYSICS

AD-624 251 Fld. 20/12, 20/2
CFSTI Prices: HC $2.00 MF $0.50
EAGLE-PICHER RESEARCH LABS MIAMI OKLA CHEMICAL AND METALS DIV
RESEARCH INVESTIGATIONS IN THE PHYSICAL CHEMISTRY AND METALLURGY OF SEMICONDUCTING MATERIALS.
Quarterly rept. no. 3, 15 Nov 60-15 Feb 61,
by K. E. Bean, and R. J. Starks. 15 Feb 61, 28p.
Contract DA-36-039-sc-85131

Unclassified report

Descriptors: (*Semiconductors, Materials), (*Boron, Single crystals), (*Semiconducting films, Boron, Substrates, Crystal growth, Doping, Silicon, Quartz, Boron compounds, Nitrides, Aluminum compounds, Oxides

Using commercial grade boron with relatively high impurity concentration and a carbon concentration as high as .8 percent, boron can be prepared with no spectrographically detectable impurities, and a carbon concentration of less than 60 parts per million. Using a crucible-free method a Czochralski crystal of elemental boron was grown which had a monocrystalline structure. These crystals fractured uniformly at an angle 19 degrees to the growth axis. The bar which was 4 inches in length and 5/16 inch in diamter was grown at a rate of one inch per hour under a positive argon pressure equal to one inch of mercury. Growth of boron films on quartz, boron nitride and alumina substrates have been accomplished. Quartz, as a substrate, was not satisfactory. The films on boron nitride were of high n-type conductivity. The ionization energy was .35 ev as compared to a value of .6 ev for high purity crystalline boron. It was determined that these films were very uniformly doped with silicon, and the source of the silicon was the boron nitride. The electrical properties of the film deposited on A1203 were not determined.

AD-624 376 Fld. 20/12, 20/3
CALIFORNIA UNIV LOS ANGELES DEPT OF PHYSICS
SUPERCONDUCTIVITY IN THE ARTIFICIAL METALS: METALLIC INDIUM ANTIMONIDE, THE INDIUM-ANTIMONIDE-TIN ALLOYS, AND METALLIC INDIUM TELLURIDE.
by B. R. Tittmann, A. J. Darnell, H. E. Bommeland , and W. F. Libby. 9 Apr 64, 5p. Contract AF-AFOSR-245-64 ,NsG-237-62 AFOSR 65-1663

Unclassified report

Availability: Published in the Physical Review, V135 N5A PA1460-2 Aug 31 1964. Copies to DDC users only.

Descriptors: (*Superconductivity, Metals), (*Intermetallic compounds, Superconductivity), Transition temperature, Magnetic fields, Crystal structure, Strain (Mechanics), Indium alloys, Antimony alloys, Tin alloys, Tellurium alloys

Superconductivity has been observed in metallic indium antimonide, in the alloys of indium antimonide with tin, and in indium telluride. The compounds and alloys were prepared and stabilized at atmospheric pressure in the way described by Darnell and Libby. Superconducting transition temperatures and critical magnetic fields were obtained by the eddy-current decay method used in measuring resistivities. (Author)

AD-624 545 Fld. 20/12
CFSTI Prices: HC $1.00 MF $0.50
ELECTRO-OPTICAL SYSTEMS INC PASADENA CALIF
RESEARCH OF ION IMPLANTATION DOPING TECHNIQUES.
Monthly progress rept. 15 Aug-15 Sep 65,
by D. B. Medved, and L. Garasi. 1 Oct 65, 7p.
Rept. no. eos-5830-M-10
Contract AF33 (615)-1989 Proj. AF-4460 Task 446002

Unclassified report

Descriptors: (*Semiconductors, Doping), (*Resistors, Semiconductor devices), Ions, Silicon, Oxides, Phosphorus, Aluminum, Potassium

Implementation was carried out on a resistor array consisting of 40 elements whose dimensions were 2 x 40 mils on a <110> oriented silicon substrate. The implantation conditions corresponded to values indicating optimum sheet resistance for the desired objective range, namely 1 to 5 kilohms per square. Resistor preparation: A <110> orientation, 20 ohm-cm p-type silicon slice was polish etched and thermally oxidized to form a 1-micron thick oxide layer. Windows were cut into the oxide through which phosphorous was diffused to form the contact pads. The diffusion layer was approximately 2 microns thick. Subsequently windows corresponding to the resistor array were cut. The n-type resistor layer was formed by K (+) ion implantation. An aluminum layer was evaporated, masked, and etched to form metal contacts on the diffused contact pads. Resistor evaluation: The reverse bias breakdown voltage between adjacent resistors was 150 volts at 1 microampere. Resistance vs temperature was measured on a selected number of gages. The distribution of resistance values on all the units which were in the direct beam was 5%.

AD-624 562 Fld. 20/12
CFSTI Prices: HC $1.00 MF $0.50
BATTELLE MEMORIAL INST COLUMBUS OHIO
HIGH-MOBILITY LOW-MELTING-POINT GROUP III-V COMPOUND SEMICONDUCTORS.
Final technical rept.,
by A. C. Beer, R. D. Baxter, and F. J. Reid. 31 Oct 65, 21p. Contract AF-AFOSR-525-64 AFOSR 2531

Unclassified report

Descriptors: (*Semiconductors, Antimony alloys), (*Gallium alloys, Antimony alloys), (*Indium alloys, Antimony alloys), Intermetallic compounds, Melting, Crystal growth, Electrical properties, Solubility, Lithium, Magnetic properties, Doping

Contents: crystal growth of GaSb from non-stoichiometric melts, properties of improved p- and n- type GaSb, solubility, and electrical behavior of Li in GaSb, galvanomagnetic effects in InSb.

AD-624 824 Fld. 20/12
CFSTI Prices: HC $1.00 MF $0.50
OHIO STATE UNIV RESEARCH FOUNDATION COLUMBUS
PROPERTIES OF SOLIDS AT LOW TEMPERATURES.
Final rept., phase 1,
by John G. Daunt. Dec 65, 5p. Contract Nonr-495 (20) Proj. NR-018-412 ,RF-989

Unclassified report

Descriptors: (*Solids, Low-temperature research), Reports, Cryogenics, Research program administration, Solid state physics

AD-624 381 See Fld. 20/3

AD-624 385 See Fld. 8/1

AD-624 427 See Fld. 11/7

AD-624 509 See Fld. 18/8

AD-624 520 See Fld. 9/1

AD-624 530 See Fld. 9/1

AD-624 558 See Fld. 20/5

AD-624 606 See Fld. 9/2

AD-624 728 See Fld. 20/5

AD-624 787 See Fld. 18/8

20/13. THERMODYNAMICS

AD-624 320 Fld. 20/13
CFSTI Prices: HC $4.00 MF $0.75
RESEARCH AND ADVANCED DEVELOPMENT DIV AVCO CORP WILMINGTON MASS
MEASUREMENT OF THE GRUENEISEN PARAMETER AND THE INTERNAL ENERGY DEPENDENCE OF THE SOLID EQUATION OF STATE FOR ALUMINUM AND TEFLON.
Final rept. 1 May 64-31 May 65,
by D. T. Morgan, M. Rockowitz, and A. L. Atkinson. Oct 65, 125p. Rept. no. rad-TR-65-24
Contract AF29 (601)-6394 Proj. 5710 Task 15.018
WL TR-65-117

Unclassified report

Descriptors: (*Aluminum, Equations of state), (*Halocarbon plastics, Equations of state), (*Equations of state, Solids), High pressure research, Thermal properties, Experimental data, Shock waves, Measurement

Experimental measurements of the solid state equation of state of aluminum and Teflon, including the internal energy dependence, were made. The data for aluminum mesh well with the data of other investigators. Using the aluminum data, it was found that for initial aluminum densities of 1.36, 1.60, and 1.82 gms/cc, the thermal internal energy, E sub th, is dependent only on the product VP sub th where V is the specific volume and P sub th is the thermal pressure. The Grueneisen parameter was found to be given by 100 / (39.9 + 0 0.284 VP sub th) with VP sub th in (cu cm kilobars)/gm. At VP sub th = 0, the Grueneisen parameter = 2.5. The solid Hugoniot for Teflon was found to mesh well with lower pressure measurements by other investigators. The scatter in the porous Teflon samples was too large and the data were too limited to permit evaluation of the Grueneisen parameter. (Author)

AD-624 542 Fld. 20/13, 7/4
CFSTI Prices: HC $3.00 MF $0.75
COLORADO UNIV BOULDER DEPT OF CHEMICAL ENGINEERING
EXPERIMENTAL PROGRAM TO DETERMINE THE THERMODYNAMIC PROPERTIES OF SOLUTIONS LIQUEFIED LIGHT GASES.
Quarterly progress rept. no. 13, 15 Apr-15 Jul 65,
by Paul L. Barrick. 15 Jul 65, 59p. Contract AF33 (657)-8512 Proj. AF-7360 Task 736001

Unclassified report

See also AD-612 052.

Descriptors: (*Thermodynamics, Liquefied gases), (*Liquefied gases, Thermodynamics), Phase studies, Liquids, Vapors, Neon, Hydrogen, Mixtures, Cryogenics, Gas analysis

An experimental investigation was conducted to determine the liquid-vapor phase equilibria of the neon-normal hydrogen system. The experiment was run using a thermally insulated system of the

vapor recirculation type, with facilities for accurately controlling the temperature and pressure and for sampling the equilibrium phases. The samples were analyzed by gas chromatography. The entire liquid-vapor region was covered by seven isotherms: 26.00, 28.00, 30.00, 34.66, 37.64, 39.57, and 42.50K. The entire pressure region was covered, from 0 to 26 atm. The data are presented in both graphical and tabular form as the mole percent of both components versus the total pressure. A plot of the K-factors is also presented. The system forms an azeotrope at temperatures below the critical of hydrogen (33.19K) in the region of low neon concentration. The two lowest isotherms indicate the formation of two liquid phases. The data are compared with other published data and for the most part check within experimental error. The analytical accuracy is probably = 3% or better, while the temperatures reported are = 0.05K, and the pressures are =0.1%. (Author)

AD-624 646 Fld. 20/13, 20/4
CFSTI Prices: HC $3.00 MF $0.75
NEW HAMPSHIRE UNIV DURHAM DEPT OF MECHANICAL ENGINEERING
EFFECT OF GEOMETRY ON LOCAL CONVECTIVE COEFFICIENTS FOR AN UNBAFFLED CIRCULAR FIN ASSEMBLY.
Master's thesis,
by Jack Leslie Baker. Jun 65, 61p. Contract AF33 (608)-1256

Unclassified report

Descriptors: (*Convection (Heat transfer), Fins), (*Fins, Geometric forms), Aerodynamic heating, Heat transfer, Thermocouples, Friction, Equations

The geometry of a fin assembly effects the distribution of h on a fin. Decreasing the fin spacing increases h circumferentially on the front edge of the fin but decreases h at the fin root. The h values decrease with an increase of fin diameter. The h values, in general, decrease from the front to the rear of the fin. The use of temperature differences in the nodal equations is more accurate than the subtraction of actual temperatures.

AD-624 660 Fld. 20/13
CFSTI Prices: HC $4.00 MF $1.00
STANFORD UNIV CALIF
THE EFFECTS OF PLASTICITY ON THE BUCKLING AND POSTBUCKLING OF CIRCULAR CYLINDRICAL SHELLS.
Doctoral thesis,
by Alan Miller Edwards. Jun 65, 138p. Contract AF33 (608)-1114

Unclassified report

Descriptors: (*Buckling (Mechanics), Plasticity), (*Structural shells, Buckling (Mechanics)), (*Cylindrical bodies, Buckling (Mechanics)), (*Plasticity, Buckling (Mechanics)), Geometric forms

AD-624 801 Fld. 20/13, 18/10
CFSTI Prices: HC $1.00 MF $0.50
REDSTONE SCIENTIFIC INFORMATION CENTER REDSTONE ARSENAL ALA
DETERMINATION OF CRITICAL HEAT FLOWS DURING THE BOILING OF A HIGH-BOILING HEAT TRANSFER AGENT IN PIPES,
by L. S. Sterman, and V. D. Mikhailov. Oct 65, 18p. Rept. no. rsic-485
TT 65-64795

Unclassified report

Trans. of Teploenergetika (USSR) v10 n10 p82-7 1963.

Descriptors: (*Heat flux, Coolants), (*Coolants, Aromatic compounds), Organiz cooled reactors, Heat transfer, Boiling, Thermodynamics, Pipes, USSR

Results are given of experiments on the determination of the values of critical heat flows during the flow of monoisopropyldiphenyl in pipes. It is shown that the known formulas cannot be used to determine these values during the surface boiling of monoisopropyl diphenyl and certain other organic liquids. (Author)

AD-624 850 Fld. 20/13, 13/11
CFSTI Prices: HC $1.00 MF $0.50
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
DETERMINATION OF THE OPTIMUM DIMENSIONS OF RADIATING FINS,
by O. Yu. Kovoselskii, and V. L. Ukolov. 24 Nov 65, 12p. Rept. no. FTD-TT-65-1032
TT 65-64806

Unclassified report

Unedited rough draft trans. of Inzhenerno-Fizicheskii Zhurnal (USSR) v7 n12 p54-9 1964.

Descriptors: (*Pipes, Thermal radiation), (*Thermal radiation, Pipes), USSR, Heat transfer, Configuration, Numerical analysis, Boundary value problems, Boiler tubes, Geometric forms

A system of equations of radiation heat transfer from a finned tube under conditions of a uni-dimensional problem is solved. A approximation method of determining the optimum dimensions of flat fins under boundary conditions on the inner surface of the tube is carried out. (Author)

AD-624 471 See Fld. 14/2

AD-624 721 See Fld. 20/3

AD-624 761 See Fld. 20/4

20/14. WAVE PROPAGATION

AD-624 253 Fld. 20/14, 17/2.1, 4/1
CFSTI Prices: HC $3.00 MF $0.75
STANFORD RESEARCH INST MENLO PARK CALIF
MEASUREMENT OF IONOSPHERIC EFFECTS ON CURTS SOUNDER/COMMUNICATIONS TERMINAL SEPARATIONS.
Final rept. no. 2,
by Harry A. Turner. Jun 65, 92p. Contract DA-28-043-AMC-00082 (E),DA-28-043-AMC-00064 (E) Proj. SRI-4980

Unclassified report

Descriptors: (*Radio communication systems, Ionospheric propagation), (*Ionospheric propagation, Radio waves), (*High frequency, Radio communication systems), Global communication systems, Radio transmission, Radiofrequency interference, Ionospheric disturbances, Atomospheric sounding, Radio equipment

This report describes experimental work concerned with the variation of selected oblique-incidence ionogram parameters (LOP, MOF, and mode MOF) as the location of the sounder terminal is moved. In the experiment, sounder transmitters were located at Fort Monmouth, New Jersey and at San Angelo, Texas. One receiver was fixed at Mountain View, California, while two mobile receivers were located at various distances, up to 300 km, east and north of Mountain View. A prediction technique is presented for estimating the parameters at a distant site when their values are known at a reference location. Observation of the two mid-latitude paths during time of geomagnetic calm show that ionospheric effects increase MOF and mode MOF rms prediction error by about 0.1 Mc per 100 km and increase LOF prediction error by about 0.05 Mc per 100 km. Geomagnetic disturbances can increase the prediction error by a factor of at least two. Application of the results to representative nodes in the DCS HF communications network is discussed in detail, with examples. The effects of site topography, equipment differences, and temporal prediction errors are evaluated. The extent to which the conclusions can be applied to other paths and seasons and to ionospheric disturbed periods is discussed. (Author)

AD-624 602 Fld. 20/14
CFSTI Prices: HC $5.00 MF $1.25
CALIFORNIA UNIV BERKELEY ELECTRONICS RESEARCH LAB
SURFACE WAVES ON ANISOTROPIC SURFACES.
Research rept.,
by Michael J. Gans. 19 Oct 65, 198p. Rept. no. ERL-65-26
Contract AF AFOSR-139-65

Unclassified report

Descriptors: (*Electromagnetic waves, Propagation), (*Log periodic antennas, Electromagnetic wave reflections), Surfaces, Continued fractions, Excitation

The main problem treated is the determination of the electromagnetic characteristics, i.e., the velocity of propagation, power flow, etc., of surface waves guided by various surfaces on which the current is constrained to flow along parallel sinusoidal paths. The purpose was to learn more about the behavior of waves on periodic anisotropic surfaces and to apply this knowledge, where possible, to obtain a clearer understanding of the method of operation of log-periodic antennas. Rumsey's continued fraction solution for the propagation characteristics of surface waves on the single sinusoidally anisotropic plane is extended to two parallel sinusoidally anisotropic planes, to the circular cylindrical sinusoidally anisotropic surface, and to the sinusoidally corrugated sheet. For surface waves on the single sinusoidally anisotropic plane, the following properties are determined: direction of power flow with respect to direction of propagation, the Floquet coefficients of the series which describes the surface wave fields, an integral representation of the summation of the Floquet series, the geometrical requirements for resonating a surface wave, and the propagation characteristics for the special cases of very low frequency and of propagation at the velocity of light perpendicular to the axes of the sinusoids. On the basis of power conservation, approximate power flow diagrams are given for leaky waves and surface waves in general. (Author)

AD-624 605 Fld. 20/14, 17/9
CFSTI Prices: HC $2.00 MF $0.50
SYRACUSE UNIV N Y DEPT OF ELECTRICAL ENGINEERING
A BEAM-SHIFTING TECHNIQUE FOR SIDE LOBE REDUCTION AND PATTERN SYNTHESIS.
Interim technical rept.,
by Jose Perini. Nov 65, 42p. Rept. no. EE-957-6509T13
Contract AF33 (602)-2646 Proj. AF-4506 Task 450604
RADC TR-65-381

Unclassified report

Descriptors: (*Antenna radiation patterns, Radar antennas), (*Radar antennas, Antenna radiation patterns), Antenna arrays, Antenna apertures, Antenna lobes, Reduction, Radar scanning, Electromagnetic waves, Synthesis

The idea of this method is to produce a narrow beam by using an aperture of convenient size with uniform illumination. By progressively phasing the aperture illumination this beam is shifted. Many beams are superposed and usually shifted in such a way that the maximum of each coincides with the zeros of all the others. By controlling the maximum amplitude of each beam, sidelobe reduction or pattern synthesis can be accomplished. Several examples are given. The results are indistinguishable from those of more involved methods. The method is extremely simple and gives a good feeling of the influence of each parameter in the resulting pattern. This is a very important feature because it makes possible an easy determination of the changes necessary to improve a synthesized pattern. This is illustrated in some of the examples. The method applies to discrete arrays as well as to continuously illuminated apertures. (Author)

AD-624 628 Fld. 20/14, 17/2.1
CFSTI Prices: HC $2.00 MF $0.50
ELECTRICAL ENGINEERING RESEARCH LAB UNIV OF TEXAS AUSTIN
MICROWAVE PHASE FRONT MEASUREMENTS FOR OVERWATER PATHS OF 12 AND 32 MILES,
by A. W. Straiton. 15 May 48, 27p. Rept. no. 15
Contract N5ori-136 (01)
Unclassified report

Descriptors: (*Radio waves, Propagation), (*Microwaves, Propagation), Radio transmission, Marine meteorology, Phase measurement, Signal-to-noise ratio

This paper presents the results of Microwave Measurements at a wave length of 3.2 centimeters for overwater paths of 12 and 32 miles near Galveston, Texas. Continuous curves of phase and signal strength for a range of transmitter heights between 10 and 55 feet mean sea level and for a range of receiver heights between 11 and 55 feet mean sea level are shown. Comparison of the two radio paths is made and deviations of the results from those commonly expected for overwater propagation are pointed out. (Author)

AD-624 732 Fld. 20/14
LINCOLN LAB MASS INST OF TECH LEXINGTON
SCATTERING OF SHORT PULSES OF ELECTROMAGNETIC WAVES.
Revised ed.,
by John Rheinstein. 6 Apr 65, 3p. Rept. no. ja-2547
Contract AF19 (628)-5167 ESD TDR-65-50
Unclassified report

Revision of manuscript submitted 2 Mar 64.

Availability: Published in Proceedings of the IEEE V53 N8 P1069-70 Aug 1965. Copies to DDC users only.

Descriptors: (*Electromagnetic waves, Scattering), Electromagnetic pulses, Spheres, Fourer analysis, Series, Backscattering

Short pulses of electromagnetic waves, comparable in duration with the extent of the scatterer, have been synthesized by Fourier series. Typical results are presented which demonstrate the presence of the socalled creeping-wave return, while illustrating shortpulse scattering in general. (Author)

AD-624 733 Fld. 20/14, 17/9
LINCOLN LAB MASS INST OF TECH LEXINGTON
SIMULATION OF RADAR BACKSCATTERING IN A RIPPLE TANK.
Revised ed.,
by Alfred J. Bogush,Jr.. 28 Mar 65, 3p. Rept. no. ja-2504
Contract AF19 (628)-5167 ESD TDR-65-49
Unclassified report

Revision of manuscript submitted 21 Mar 65.

Availability: Published in Proceedings of the IEEE V53 N8 P1093-4 Aug 1965. Copies to DDC users only.

Descriptors: (*Backscattering, Radar), (*Simulation, Backscattering), Scattering, Conical bodies, Spheres, Electromagnetic waves, Test facilities

A ripple tank study of wave motion associated with the wave formation in the vinicity of a cone-sphere is discussed. The experimental test facility is described. Included in the interpretation of the ripple tank experiments are the wave formations in the shadow region of the cone-sphere showing traveling and creeping waves. (Author)

AD-624 843 Fld. 20/14, 9/5
CFSTI Prices: HC $4.00 MF $1.00
POLYTECHNIC INST OF BROOKLYN N Y MICROWAVE RESEARCH INST
INVESTIGATIONS ON THE GUIDING, SCATTERING, AND RADIATION OF ELECTROMAGNETIC WAVES.
Final rept., 1 Dec 60-31 Dec 64,
by Arthur A. Oliner. 2 Jul 65, 143p. Rept. no. pibmri-1272-65
Contract AF19 (604)-7499 Proj. AF-4600 Task 460004
AFCRL 65-53
Unclassified report

Descriptors: (*Electromagnetic waves, Propagation), (*Waveguides, Microwaves), Scattering, Antenna radiation patterns, Dielectrics, Antennas, Resonance, Slot antennas

Contents: General studies of wave types at an interface; Guiding and scattering by sinusoidally-modulated dielectric structures; Radiation from periodicallymodulated slow-wave structures; Scattering resonances on periodic structures; Consequences of symmetries in periodic structures; Parametric interactions of waves in space-time periodic structures; Waveguide discontinuity studies; Comprehensive notes on modal analysis and synthesis.

AD-624 847 Fld. 20/14, 4/1
CFSTI Prices: HC $3.00 MF $0.75
PENNSYLVANIA STATE UNIV UNIVERSITY PARK IONOSPHERE RESEARCH LAB
INVESTIGATION OF PROBLEMS ENCOUNTERED IN WAVE INTERACTION EXPERIMENTS AT HIGH POWER.
Scientific rept.,
by C. D. Bell, A. J. Ferraro, and H. S. Lee. 14 Jan 66, 71p. Rept. no. scientific-262
Contract Nonr 656 (35) Grant ,NSF-GP-846
Unclassified report

Descriptors: (*Luxemberg effect, Ionospheric disturbances), (*Ionospheric propagation, Radiofrequency power), Electron density, Heat transfer, Atmospheric temperature, Approximation (Mathematics), Electrons, Temperature

The wave interaction equations are extended to account for nonlinearities which are noticeable at high disturbing powers. Previous assumptions are investigated to see if they are still valid. A suitable nonlinear approximation is derived for ionospheric heating. This approximation leads to an accurate analytical approximation for the interaction effect at high powers. It was found that ionospheric parameters will be able to be synthesized using high powered interaction. A preliminary study indicated the feasibility of synthesizing electron temperature form interaction data. (Author)

AD-624 297 **See Fld. 9/1**

AD-624 304 **See Fld. 9/5**

AD-624 356 **See Fld. 20/9**

AD-624 393 **See Fld. 4/1**

AD-624 440 **See Fld. 17/9**

AD-624 462 **See Fld. 4/1**

AD-624 550 **See Fld. 14/2**

AD-624 586 **See Fld. 17/9**

AD-624 617 **See Fld. 9/1**

AD-624 630 **See Fld. 17/9**

AD-624 859 **See Fld. 17/2**

21/2. COMBUSTION AND IGNITION

AD-624 834 Fld. 21/2
MASSACHUSETTS INST OF TECH CAMBRIDGE
MECHANISMS OF COMBUSTION INSTABILITY,
by Tau-Yi Toong, Richard F. Salant, John M. Stopford, and Griffin Y. Anderson. 1964, 12p.
Contract AF49 (638)-629 Grant ,AF-AFOSR-209-63 AFOSR 65-2206
Unclassified report

Availability: Published in Symposium (International) on Combustion (10th) P1301-13 1965.

Descriptors: (*Combustion, Stability), Flames, Oscillation, Turbulence, Acoustic properties, Laminar flow

The paper presents results of a study aimed at understanding mechanisms involved in triggering, amplification, and suppression of acoustic waves due to presence of flames. Experiments performed demonstrate that strong interactions between acoustic and flame oscillations can exist through flow oscillations, and that these interactions are due to energy transport between various oscillation modes through both linear and nonlinear couplings. The intensity of the interactions can be altered by varying flow velocity through an organ pipe. Under reduced-flow conditions, the linear coupling is eliminated and the flame exhibits periodic self-sustained oscillations. However, with imposed acoustic excitation of sufficiently large amplitude, the interactions again become important, due to nonlinear effects. Nonlinear coupling between longitudinal acoustic oscillations and tangential or radial flow and flame oscillations is also observed. Supporting evidence is presented, which shows that the onset of the above-mentioned self-sustained oscillations of diffusion flames is due to instability of travelling Tollmien-Schlichting disturbance waves-the same mechanism which leads to onset of transition from laminar to turbulent flows. Effects of changes in the flow field, due to the presence of interacting burning and nonburning simulated fuel droplets, on the oscillation characteristics are reported and interpreted in terms of the postulated mechanism of boundary-layer instability. Under some conditions, oscillations can actually be stopped by placing nonburning cylinders near an (otherwise) oscillating flame. (Author)

AD-624 533 **See Fld. 21/9**

AD-624 540 **See Fld. 21/9**

AD-624 581 **See Fld. 22/1**

21/4. FUELS

AD-624 565 Fld. 21/4, 21/5
CFSTI Prices: HC $2.00 MF $0.50
CALIFORNIA UNIV BERKELEY DEPT OF MECHANICAL ENGINEERING
CALCULATION OF ENGINE PERFORMANCE USING AMMONIA FUEL. II. DIESEL CYCLE.
Technical rept.,
by H. K. Newhall. Sep 65, 47p. Rept. no. ts-65-3
Contract DA-04-200-AMC-791 (X)
Unclassified report

See also N65-31898.

Descriptors: (*Ammonia, Fuels), (*Fuel oil, Diesl engines), Performance (Engineering), Combustion products, Chemical equilibrium

A digital computer program was used to predict theoretical performance for ammonia as a fuel for Diesel engines. The theoretical model employed is the Diesel cycle, and products of combustion were treated as a chemical equilibrium system. Results are presented for ammonia and in addition

for cetene, a common hydrocarbon fuel. It is thus possible to directly compare the performance predicted for ammonia to that predicted for commonly employed hydrocarbon fuels. The following conclusions regarding performance of ammonia are based upon this work: (1) In the event of developments leading to successful combustion of ammonia in Diesel engine application, ammonia would be expected to yield up to 10% more power output than typical hydrocarbon fuels operating under the same conditions. (2) The thermal efficiency obtained with ammonia would be expected to be greater than that for hydrocarbon fuels by as much as 20%. (3) Specific fuel consumption for ammonia may be expected to be approximately 2-1/2 times greater for ammonia than for hydrocarbon fuels. (4) The exhaust concentration of nitric oxide resulting from the use of ammonia should be substantially less than that produced by hydrocarbon fuels. (Author)

AD-624 724 Fld. 21/4, 21/5
CFSTI Prices: HC $1.00 MF $0.50
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
THE ROLE OF KINETIC AND DIFFUSIONAL FACTORS IN THE COMBUSTION OF FUELS IN GAS-TURBINE ENGINES,
by V. V. Makarenkov, G. M. Panchenkov, and V. V. Vakovlevskii. 24 Nov 65, 24p. Rept. no. ftd-TT-65-1015
TT 65-64780

Unclassified report

Unedited rough draft trans. of mono. Neftekhimiya, Neftekhimicheskiye Protessy i Nefteperarabotka, Moscow/Leningrad, 1964 p171-85.

Descriptors: (*Jet engine fuels, Combustion), (*Combustion, Gas turbines), Combustion products, USSR, Combustion chambers, Fuel additives, Reaction kinetics, Diffusion, Physical properties

The process of combustion of fuel in a gas-turbine combustion chamber may be governed, according to the fuel and the conditions in the chamber, either by physical factors, in which case it will proceed in the diffusional region, or by the rate of the chemical reaction of combustion, in which case it will proceed in the kinetic region instead. The process of combustion in the chamber can be intensified by changing the structure of the hydrocarbons composing the fuel, or by adding special compounds to the standard fuel. The additives exert an initiating action on the process of fuel combustion in cases where it is governed by the rate of the chemical reaction of combustion, and do not exert such an action when the fuel combustion process is governed instead by the atomization and vaporization of the fuel. (Author)

AD-624 751 Fld. 21/4
CFSTI Prices: HC $1.00 MF $0.50
AEROSPACE INFORMATION DIV LIBRARY OF CONGRESS WASHINGTON D C
FURTHER ANALYSIS OF DATA ON T-5 FUEL,
5 Sep 62, 8p. Rept. no. AID-62-132
TT 65-64787

Unclassified report

Review of selected articles from 4 Russian, Hungarian, and Chinese periodicals.

Descriptors: (*Jet engine fuels, Chemical properties), Physical properties, USSR, Hungary, China, Synthesis (Chemistry), Hydrogenation, Chemical analysis

Topics include: manufacture and composition of Soviet T-5 fuel, description of the raw material, conditions of hydrogenation, and the properties and composition of Cerchar jet fuel. The most important data on Cerchar fuel are compared with data on T-5 fuel.

21/5. JET AND GAS TURBINE ENGINES

AD-624 767 Fld. 21/5
CFSTI Prices: HC $2.00 MF $0.50
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
CERTAIN RESULTS OF INVESTIGATION OF A CENTRIPETAL GAS TURBINE WITH NOZZLE ADJUSTMENT,
by A. I. Loshkarev, and B. N. Bryukhanov. 18 Nov 65, 27p. Rept. no. ftd-MT-64-455
TT 65-64793

Unclassified report

Edited machine trans. of Izvestiya Vysshikh Uchebnykh Zavedenii. Mashinostroenie (USSR) n2 p208-23 1963.

Descriptors: (*Gas turbine nozzles, Control), (*Gas turbines, Mechanical engineering), USSR, Fluid dynamic properties, Gas turbine nozzles, Gas turbine rotors, Fluid flow, Power

AD-624 820 Fld. 21/5, 20/7
CFSTI Prices: HC $8.25 MF $2.25
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
MANUFACTURE OF BASIC COMPONENTS AND ASSEMBLIES OF AIRCRAFT ENGINES,
by M. I. Evstigneev, I. A. Morozov, A. V. Podzei, A. M. Sulima, and I. S. Tsukanov. 15 Oct 65, 528p. Rept. no. FTD-MT-65-57
TT 65-64797

Unclassified report

Edited machine trans. of mono. Izgotovlenie Osnovnykh Detalei i Uzlov Aviadvigatelei, Moscow, 1964 456p.

Descriptors: (*Aircraft engines, Manufacturing methods), Engine structures, Design, Jet engines, Gas turbine blades, Gas turbine nozzles, Compressor parts, Gears, Impellers, Combustion chambers, Fuel injectors, Pipes, Reactor fuel elements, Plastics, Handbooks, Training devices, USSR

The book, which is a training aid for students of aviation higher educational institutions and departments, presents the technological processes of manufacture of the critical components and assemblies of aircraft engines. It considers their design features, technical specifications for manufacture and materials, construction of technological processes, methods of executing basic operations, and checking methods. The book will also be useful to engineers and technicians of the aviation industry. (Author)

AD-624 852 Fld. 21/5
CFSTI Prices: HC $1.00 MF $0.50
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
COMPUTATION OF TEMPERATURE FIELDS AND STRESSES IN THE COOLED ROTOR OF A GAS TURBINE ON STARTING,
by S. A. Mokrushin, and Ya. M. Gusak. 24 Nov 65, 22p. Rept. no. ftd-TT-65-1028
TT 65-64808

Unclassified report

Unedited rough draft trans. of Energomashinostroenie (USSR) v10 n7 p11-5 1964.

Descriptors: (*Gas turbine rotors, Stresses), (*Stresses, Gas turbine rotors), USSR, Temperature, Disks, Programming (Computers), Numerical analysis, Air cooled

A method is presented for the calculation of temperatures and stresses in the disks of gas turbines on starting, by means of a universal program for the 'Ural-1' electronic digital computer. (Author)

AD-624 565 **See Fld. 21/4**

AD-624 716 **See Fld. 1/3**

AD-624 724 **See Fld. 21/4**

AD-624 822 **See Fld. 1/3**

21/8.2 SOLID ROCKET MOTORS

AD-624 737 Fld. 21/8.2
CFSTI Prices: HC $1.00 MF $0.50
NORTHWESTERN UNIV EVANSTON ILL STRUCTURAL MECHANICS LAB
THICKNESS SHEAR VIBRATIONS OF AN ABLATING ROCKET.
Technical rept.,
by J. D. Achenbach. Jul 65, 21p. Rept. no. TR-65-3
Contract Nonr-1228 (34)

Unclassified report

Descriptors: (*Rocket motors (Solid propellant), Vibration), Ablation, Combustion chamber liners, Rocket cases, Shear stresses, Viscoelasticity, Aerodynamic characteristics

This paper presents an analytical study of the axial shear vibrations of a long hollow cylinder that is subjected to time dependent body forces in the axial direction. The outer surface of the cylinder is bonded to a rigid case, and the inner radius increases monotonically with time. An expression is determined for the shear stress at the bond-interface. It is shown that the frequency of the shear-bond stress increases, and that its amplitude decreases towards burnout time. The shear stress is studied for various ablation rates. Conventional methods of analysis, such as separation of variables and Fourier-Bessel analysis, are not directly applicable in this problem, since the boundary conditions are prescribed on a time dependent surface. A modified Fourier-Bessel mode is defined that satisfies the boundary conditions. By substituting this mode into the equation of motion, a solution is obtained by asymptotic methods in the vicinity of the bond-interface. The analysis is extended to include the axial shear vibrations of an ablating viscoelastic cylinder. Viscoelasticity is introduced by means of the relaxation function in shear. (Author)

21/9. ROCKET PROPELLANTS

AD-624 641 **See Fld. 7/2**

AD-624 681 **See Fld. 22/3**

21/9.1 LIQUID ROCKET PROPELLANTS

AD-624 543 **See Fld. 7/4**

21/9.2 SOLID ROCKET PROPELLANTS

AD-624 300 Fld. 21/9.2
CFSTI Prices: HC $2.00 MF $0.50
PURDUE UNIV LAFAYETTE IND DEPT OF CHEMISTRY
RESEARCH IN NITROMONOMERS AND THEIR APPLICATION TO SOLID SMOKELESS PROPELLANTS.
Annual progress rept. no. 27, 15 Sep 64-14 Sep 65,
by Henry Feuer. 30 Nov 65, 44p. Contract Nonr-1100 (13)

Unclassified report

See also AD-609 852.

Descriptors: (*Smokeless propellants, Synthesis (Chemistry)), (*Solid rocket propellants, Synthesis (Chemistry)), (*Organic nitrogen compounds, Smokeless propellants), Diboranes, Oximes, Amines, Hydrolysis, Polycyclic compounds, Nitration, N-heterocyclic compounds, Ketones, Salts

The reactions of diborane with aliphatic aldoximes and ketoximes lead to intermediates which on basic or acidic hydrolysis afford exclusively the corresponding Nmonosubstituted hydroxylamines in yields of 50-90%. The intermediates from the reaction of diborane with alpha-aryl aldoximes and ketoximes give only on acid hydrolysis the desired hydroxylamines. Primary and secondary nitroalkanes which are unaffected by diborane interact readily in the form of their salts with this reagent. The reaction leads to intermediates which on basic or acid hydrolysis afford N-monosubstituted hydroxylamines in yields of 30-60%. The scope of the alkyl nitrate nitration was successfully extended to heterocyclic systems such as piperidones and pyrrolidones.

AD-624 533 Fld. 21/9.2, 21/2
CFSTI Prices: HC $1.00 MF $0.50
ATLANTIC RESEARCH CORP ALEXANDRIA VA KINETICS AND COMBUSTION GROUP
RESEARCH ON THE DEFLAGRATION OF HIGH-ENERGY SOLID OXIDIZERS.
Quarterly technical summary rept. no. 13, 1 Jun-13 Aug 65,
by J. B. Levy, and G. von Elbe. 11 Oct 65, 13p.
Contract AF49 (638)-1169 AFOSR 65-2291
Unclassified report

See also AD-617 272.

Descriptors: (*Solid rocket oxidizers, Deflagration), (*Hydrazine derivatives, Perchlorates), (*Deflagration, Solid rocket oxidizers), Thermocouples, Temperature, Pressure, Exhaust flames

The flame temperature of hydrazine diperchlorate was measured using fine Chromel-Alumel thermocouples. At 28 atm the measured temperature was found to be > 200C below the calculated product gas temperature. The observed temperature increases with pressure, and at approximately 100 atm the theoretical value is attained. The temperature profile through the preheat zone of the combustion wave was carefully measured at 18 atm. This was found to agree well with that predicted by theory if some variation of thermal diffusivity with temperature is assumed. The thermal profile at low pressure was found not to exhibit the character of that of a normal deflagration wave. This finding has shed considerable light on the nature of the process. Finally, quenching experiments were performed and these are discussed. (Author)

AD-624 540 Fld. 21/9.2, 21/2, 7/4
CFSTI Prices: HC $2.00 MF $0.50
IIT RESEARCH INST CHICAGO ILL
A FEASIBILITY STUDY TO INCREASE THE ACTIVITY OF OXIDES WITH OXYGEN AND TO LOWER THE IGNITION TEMPERATURE OF SLURRY METALS.
Quarterly progress rept. for 1 Aug-31 Oct 65,
by Eli S. Freeman, Winfried Rudloff, and Aaron J. Becker. 29 Nov 65, 29p. Rept. no. iitri-U6020-6
Contract AF33 (615)-2688 Proj. IITRI-U6020
Unclassified report

See also AD-622 278.

Descriptors: (*Rocket propellants, Combustion), (*Cobalt compounds, Doping), (*Fluorides, Doping), Oxidation-reduction reactions, Potassium, Oxides, Lead compounds, Fluorine compounds, Lead, Sodium compounds, Silicates, Thermogravimetric analysis, Differential thermal analysis, Decomposition, Reaction kinetics, Slurry fuels, Feasibility studies

The influence of coping on the reactivity of cobalt oxides was investigated by DTA and TGA (thermogravimetric analysis). Particularly, the influence of anionic impurities such as fluorides was studied. Additional doping procedures were also explored. Samples were vacuum-coated under potassium vapor. It is found that this procedure reduces the cobalt oxide, Co3O4, almost completely to metallic cobalt. Doping with fluorides, especially with PbF2, has the effect of shifting the exothermal oxidation peaks by as much as 60C. Investigations of the system Pd, PdO lead to the conclusion that the oxidation of pure Pd is primarily a surface reaction as indicated by only a 1% weight change during repeated decomposition-oxidation cycles. Doping with fluorides, particularly with Na2SiF6 resulted in a 10-fold increase in the reaction rate as indicated by a pronounced increase in exothermal and endothermal DTA band areas. (Author)

22/1. ASTRONAUTICS

AD-624 479 Fld. 22/1, 17/7
CFSTI Prices: HC $1.00 MF $0.50
JOHNS HOPKINS UNIV SILVER SPRING MD APPLIED PHYSICS LAB
A PASSIVE SYSTEM FOR DETERMINING THE ATTITUDE OF A SATELLITE,
by Harold D. Black. Aug 63, 14p. Rept. no. tg-517
Contract NOw-62-0604-c
Unclassified report

Descriptors: (*Satellite attitude, Magnetic guidance), (*Magnetic guidance, Satellite attitude), (*Attitude control systems, Satellites (Artificial), Magnetometers, Solar cells, Horizon scanners, Telemeter systems, Telemetering data, Numerical analysis

The system is based upon measurements of the direction cosines of two linearly independent vectors. The necessary measurements are performed in a satellitefixed coordinate system and telemetered to a ground station. Knowledge of the satellite position (obtained from independent measurements) can then be used together with the telemetered results to compute the attitude matrix for the satellite. A system designed and successfully implemented in the 1963 22A satellite is described. Some results are given. (Author)

AD-624 575 Fld. 22/1, 22/2, 22/3, 22/4
CFSTI Prices: HC $2.00 MF $0.50
AEROSPACE TECHNOLOGY DIV LIBRARY OF CONGRESS WASHINGTON D C
SOVIET SPACE EXPLORATION AS VIEWED BY EAST GERMAN SPECIALISTS,
by Gerhard Erleman. 15 Nov 65, 44p. Rept. no. ATD-65-101
TT 65-64766
Unclassified report

Comprehensive report dealing with Soviet space exploration during the period 1960-1964, based on open literature.

Descriptors: (*Astronautics, USSR), Launch vehicles (Aerospace), Reentry vehicles, Space communication systems, Manned spacecraft, Lunar craft, Lunar probes, Rendezvous trajectories, Spacecraft docking, Soft landings, Space stations, Electric propulsion, Computers, Lasers, East Germany

The report deals with Soviet space exploration during the last five years (1960-1964) as viewed by East German specialists. It is based on open literature available at the Aerospace Technology Division of the Library of Congress. The materials have been discussed chronologically in eight sections according to subject. Some East German sources discussed include interesting information not found in Soviet publications. The possible application of parallel connection of launch-vehicle stages (clustering) in the Vostok-type vehicle, the surrounding of a reentering spacecraft with a magnetic field (Vostok-1 and Vostok-2), and the bonding of metals and plastics by nuclear welding are considered to be among the more interesting items in this report. The introduction summarizes the materials contained in the report. Section I, General Remarks and Inferences, contains analyst's conclusions. Sections II through VIII contain a chronological review of materials. (Author)

AD-624 581 Fld. 22/1, 21/2, 17/9, 20/9
CFSTI Prices: HC $4.00 MF $0.75
AEROCHEM RESEARCH LABS INC PRINCETON N J
RADAR INTERFERENCE EFFECTS IN THE LEM DESCENT ENGINE EXHAUST PLUME. PART I. CHEMI-IONIZATION IN THE LEM PROPELLANT SYSTEM. PART II. PREDICTION OF REFRACTION AND ATTENUATION OF THE LEM RADAR BEAMS.
Final rept. 5 Feb-5 Jun 65,
by W. J. Miller, and H. S. Pergament. Jul 65, 105p. Rept. no. aeroChem-TP-118
Unclassified report

Descriptors: (*Lunar craft, Exhaust flames), (*Radar interference, Lunar craft), (*Exhaust flames, Gas ionization), (*Gas ionization, Radar interference), Electrons, Dimethyl hydrazine (1-1), Nitrogen compounds, Oxides, Langmuir probes, Thermochemistry, Chemical equilibrium, Radar signals, Attenuation, Refraction, Doppler radar, Altimeters, Signal-to-noise ratio, Plasma medium, Nonequilibrium flow, Combustion chamber cases

An experimental program was undertaken to determine the importance of chemi-ionization as an electron-contributing mechanism in the LEM descent engine propellant system. Studies were conducted on UDMH/N2O4 diffusion flames at low pressures (5 to 50 Torr) using Langmuir probes and mass spectrometric procedures. These flames were also examined using Langmuir probes at atmospheric pressure and at the descent engine chamber pressure (110 psia). The actual fuel, Aerozine 50/N2O4, was tested at the latter pressure only, under conditions directly analogous to those in the chamber. It was concluded as a result of this experimental investigation that thermal ionization will be, by far, the dominant electronproducing process in the LEM combustion chamber. The refraction and attenuation of two radar beams passing through the LEM exhaust plume are predicted. The maximum beam refraction is predicted to be about 2 milliradians for the doppler beam passing through the most dense part of the plasma. The altimeter beam experiences a maximum refraction of just over 1 milliradian. The attenuation (absorption) of both beams was found to be less than 0.1 db, which is probably well within the allowable signal-to-noise margin for the LEM radars. (Author)

22/2. SPACECRAFT

AD-624 358 Fld. 22/2
CFSTI Prices: HC $1.00 MF $0.50
LINCOLN LAB MASS INST OF TECH LEXINGTON
LES-4 SPIN AXIS ORIENTATION SYSTEM.
Technical note,
by Edward A. Vrablik, William L. Black, and L. John Travis. 1 Oct 65, 21p. Rept. no. tn-1965-48
Contract AF19 (628)-5167 Proj. AF-649L ESD TDR-65-46
Unclassified report

Descriptors: (*Satellites (Artificial), Spin stabilization), (*Spin stabilization, Satellites (Artificial)), Satellite attitude, Stabilization systems, Momentum, Scientific satellites, Computer logic

This report deals with the design of a satellite stabilization system to maintain the angular momentum of a spin stabilized satellite normal to the satellite's orbital plane. This orientation of the angular momentum allows a higher gain (narrower beam) antenna in the Xband communications link in the satellite. The stabilization system uses the Earth's magnetic field as a source of torque and requires no commands from the ground as all the error sensing components are satelliteborne. (Author)

AD-624 592 Fld. 22/2, 17/7, 1/3
CFSTI Prices: HC $1.00 MF $0.50
NAVAL RESEARCH LAB WASHINGTON D C
DIRECTIONAL EQUILIBRIUM OF AN ARTIFICIAL SATELLITE ENVELOPING A NONUNIFORM REGION OF A GRAVITATIONAL FIELD.
Interim rept.,
by P. A. Crafton. 25 Oct 65, 14p. Rept. no. nrl-6321
Proj. RF-002-06-41-4200

Unclassified report

Descriptors: (*Attitude control systems, Satellites (Artificial)), (*Satellites (Artificial), Stabilization systems), Gravity, Celestial mechanics, Inertial guidance, Satellite attitude

Certain artificial satellites used for communications and/or navigation require means of directional stabilization. If the satellite encompasses an essentially uniform region of the gravitational field, it is in neutral directional equilibrium in that force field. The creation of an artificial satellite with a discrete distribution of mass permits us to have a satellite encompassing a nonuniform region of the gravitational field although having a relatively low total mass. The basic mathematical relationships are developed that must be satisfied by any 'gravity-gradient' satellite in order that it have stable directional equilibrium. The satellite is assumed to have a discrete distribution of mass, and is assumed to be not subjected to other body forces, radiation forces, and disturbing forces. (Author)

AD-624 615 Fld. 22/2, 4/1
CFSTI Prices: HC $3.00 MF $0.75
EWEN KNIGHT CORP EAST NATICK MASS
MOLECULAR ATMOSPHERIC OXYGEN HORIZON STUDY DATA EVALUATION STUDY REPORT,
by Hugh P. Taylor. 5 Oct 65, 66p. Rept. no. Scientific-3
Contract AF19 (628)-3239 Proj. AF-4427 Task 442702
AFCRL 65-82

Unclassified report

Descriptors: (*Horizon scanners, Thermal radiation), (*Thermal radiation, Oxygen), (*Oxygen, Thermal radiation), Satellites (Artificial), Attitude control systems, Vertical indators, Radiometers, Atmospheric temperature, Molecular properties, Microwave frequency, Feasibility studies

Since many attitude controlled earth satellites have been orientated in the direction of the instantaneous local vertical, the accurate determination of the spacecraft's instantaneous local vertical is a major problem of concern. The solution previously proposed is to utilize the thermal radiation from oxygen in the earth's atmosphere to establish the local vertical at the space vehicle. The oxygen radiation, which appears to be well defined, presents a most attractive means of establishing the local vertical, independent of the spatial distribution of weather and temperature variations appearing across the surface of the earth. This report is concerned with the utilization and interpretation of data taken with a prototype radiometer. The objective is to arrive at a quantitive conclusion with respect to the efficacy of a microwave vertical sensing configuration. Restrictions on the data and their effect on the conclusion to be drawn due to satellite environment considerations are discussed. The radiometer design is reviewed and the telemetry requirements indicated.

AD-624 668 Fld. 22/2, 10/2, 10/3
CFSTI Prices: HC $5.00 MF $1.00
PRINCETON UNIV N J
ELECTRICAL POWER SYSTEMS FOR THE MANNED ORBITING LABORATORY.
Master's thesis,
by Michael R. Anderberg. Oct 65, 184p. Contract AF33 (608)-1269

Unclassified report

Descriptors: (*Space stations, Electric power production), (*Electric power production, Space stations), (*Manned spacecraft, Power supplies), (*Power equipment, Space stations), Air force research, Mission profiles, Fuel cells, Solar cells, Batteries + components, Experimental design, Energy conversion

This paper is a detailed design study of possible electrical power systems for the Air Force's Manned Orbiting Laboratory. The mission requirements and details are reviewed to the extent that they are known in the open literature and a set of power requirements is derived. On the basis of reliability, availability, and weight considerations, only solar cells, fuel cells, secondary batteries and combinations thereof are selected for detailed analysis. For the 30 day mission it is concluded that if no experiments are required during the shadow protion of the orbit, the integrated battery/solar cell system is superior by a large margin. If experiments are required in the shadow period, it is found that either the fuel cell system or the battery/solar cell system may be optimum depending on the magnitude and type of power required. It is also found that for a 60 day mission only the battery/solar cell system can be seriously considered. The analysis of the three power systems in support of the design study is developed step by step and may be used as a detailed guide for analyzing the characteristics of these systems for other missions. (Author)

AD-624 475 **See Fld. 8/4**

AD-624 487 **See Fld. 6/2**

AD-624 575 **See Fld. 22/1**

AD-624 643 **See Fld. 17/2**

AD-624 671 **See Fld. 13/2**

AD-624 678 **See Fld. 17/2**

AD-624 684 **See Fld. 18/14**

22/3. SPACECRAFT TRAJECTORIES AND REENTRY

AD-624 467 Fld. 22/3, 5/8, 17/7
CFSTI Prices: HC $2.00 MF $0.50
RITCHIE INC DAYTON OHIO
INVESTIGATION OF 'PREDICTOR' DISPLAYS FOR ORBITAL RENDEZVOUS, PROGRAM SUMMARY.
Final rept. Nov 63-Oct 64,
by William K. McCoy Jr., and George G. Frost. Sep 65, 37p. Contract AF33 (615)-1089 Proj. AF-7184 Task 718402
AMRL TR-65-138

Unclassified report

Descriptors: (*Man-machine systems, Rendezvous spacecraft), (*Rendezvous guidance, Display systems), (*Rendezvous trajectories, Orbital trajectories), (*Astronautics, Rendezvous guidance), Interception spacecraft, Interception, Lunar probes, Navigation computers, Analog computers, Operators (Personnel), Performance (Human), Time studies

A series of studies on the development of predictor display techniques for orbital rendezvous is summarized. The purpose of this program was to evaluate alternative predictive display techniques for orbital rendezvous. After an analog simulation of the rendezvous problem was mechanized and a display format developed, two studies were conducted investigating operator efficiency at control of rendezvous utilizing the side looking display format and predictor display techniques. Also, two display modifications were investigated: a reduced display size and, the addition of a braking circle. The results of the initial work indicated that operator performance in manual control of rendezvous maneuvers was enhanced by predictor display techniques. The final section of the report outlines the plans for followon efforts. (Author)

AD-624 476 Fld. 22/3, 17/9
CFSTI Prices: HC $3.00 MF $0.75
JOHNS HOPKINS UNIV SILVER SPRING MD APPLIED PHYSICS LAB
STUDIES ON DOPPLER RESIDUALS-I: DEPENDENCE ON SATELLITE ORBIT ERROR AND STATION POSITION ERROR,
by W. H. Guier. Jun 63, 88p. Rept. no. tg-503
Contract NOw-62-0604-c

Unclassified report

Descriptors: (*Doppler systems, Tracking), (*Satellites (Artificial), Orbital trajectories), (*Orbital trajectories, Errors), Position finding, Range finding, Perturbation theory, Circular orbit trajectories, Doppler radar

The manner in which station position error and satellite orbit error affect the time dependence of the doppler residuals is considered for one pass of the satellite above a station's horizon. Consequently, the correlation of satellite position and velocity error during the time of the satellite pass is discussed in particular detail. The error is considered in the 'navigated' position of a tracking station by a least squares fit to the doppler residuals - being motivated by the manner in which spurious data is deleted in the preprocessing of doppler data through movement of the station's position.

AD-624 632 Fld. 22/3, 15/7
CFSTI Prices: HC $2.00 MF $0.50
LOCKHEED MISSILES AND SPACE CO SUNNYVALE CALIF
PARAMETRIC PRESENTATION OF COVERAGE DATA FOR POLAR VEHICLES,
by N. N. Berger. 6 Feb 59, 42p. Rept. no. lmsd-422121

Unclassified report

Descriptors: (*Polar orbit trajectories, Area coverage), (*Area coverage, Polar orbit trajectories), Satellites (Artificial), Graphics, Reconnaissance satellites

In the design of orbiting earth-looking systems, some of the principal system design criteria (energy altitude limitations and angle of coverage) are usually imposed by the operational requirements. This report presents a display, in parametric form, of the relationships between altitude, revolutions per sidereal day, view angle and/or swath width, latitude of circular polar orbits, and the total percentage of the earth's surface looked at during various periods of time. Per cent coverage, as used in this report, is defined as being the percentage of the total earth area (at a certain latitude) that the polar orbiting vehicle can look toward while traveling in a single direction (north to south or south to north) in a specified period of time. This per cent coverage disregards the effects of more than one look at an area in the time interval of interest, as well as the effects of cloud cover and haze. The per cent coverage is thus an involved relationship between altitude, view angle (or swath width), latitude, and the number of days of operation. To encompass these relationships adequately, and to obtain maximum systems design utilization of this study, four basic types of parametric graphs are shown.

AD-624 655 Fld. 22/3, 12/1
CFSTI Prices: HC $3.00 MF $0.75
STANFORD UNIV CALIF DEPT OF AERONAUTICS AND ASTRONAUTICS
THE APPLICATION OF FLOQUET THEORY TO THE COMPUTATION OF SMALL ORBITAL PERTURBATIONS OVER LONG TIME INTERVALS USING THE TSCHAUNERHEMPEL EQUATIONS,
by Benjamin O. Lange, and Robert G. Smith. Aug 65, 74p. Rept. no. sudaer-241
Contract AF33 (608)-1278 Grant ,NASA-NsG-582

Unclassified report

Descriptors: (*Perturbation theory, Orbital trajectories), (*Orbital trajectories, Perturbation theory), Satellites (Artificial), Equations of motion, Inertial guidance, Solar radiation, Differential equations

This paper deals with a method of calculating the deviation of the path of an orbiting body from a nominal or reference trajectory. The form in which the solution is cast was motivated by a particular perturbation problem. Stanford University is developing a 'drag-free', or 'dragmakeup', scientific satellite which is designed to follow a purely gravitational orbit. The satellite consists actually of two satellites: an inner sphere or proof mass, and an outer concentric shell. The relative position of the shell with respect to the inner sphere is sensed with a capacitive pickoff. The position signals command an active translation control system which fires jets mounted on the outer shell so that it chases the inner sphere without ever touching it. Thus the proof mass is shielded from gas drag and solar radiation pressure and, except for very small disturbances caused by force interactions with the outer shell, it follows a purely gravitational orbit.

AD-624 681 Fld. 22/3, 21/9
CFSTI Prices: HC $1.00 MF $0.50
MICHIGAN UNIV ANN ARBOR
MINIMUM FUEL ANALYSIS OF A LUNAR SOFT LANDING MISSION USING FEEDBACK CONTROL.
Professional engineering degree paper, by John R. Hoffman. Jun 65, 23p. Contract AF33 (608)-1086

Unclassified report

Descriptors: (*Lunar craft, Soft landings), (*Soft landing, Fuel consumption), (*Fuel consumption, Optimization), Lunar trajectories, Control systems, Mathematical analysis, Feedback

The problem of making a soft landing on the moon's surface with a vehicle using conventional chemical rocket engines with restart capability was studied in this paper. In particular, a minimum fuel control scheme utilizing readily computed controls has been sought and found. By studying the problem from a constant gravity viewpoint, it was found that by running several extremal trajectories backwards from the moon's surface, some very interesting similarities in the trajectories were noticed. When the thrusting angle was plotted against velocity direction for the various extremal trajectories, these curves fell very close together for the low thrust case, and fell on the same curve for medium and high thrust cases (see charts). The results of this paper show that a very simple feedback control exists which is for all practical purposes optimal. The trajectory has a thrust profile which is full on, or off in a coasting phase, depending on the initial conditions and the landing point desired.

AD-624 575 See Fld. 22/1

22/4. SPACECRAFT LAUNCH VEHICLES AND GROUND SUPPORT

AD-624 523 Fld. 22/4, 16/1, 12/2
CFSTI Prices: HC $1.00 MF $0.50
RAND CORP SANTA MONICA CALIF
SOME THOUGHTS ON RANGE PLANNING AND OPERATION,
by Raoul J. Freeman. Dec 65, 15p. Rept. no. p-3246

Unclassified report

Descriptors: (*Guided missile ranges, Operations research), (*Satellite tracking system, Operations research), (*Management planning, Guided missile ranges), Operation, Mathematical models

The paper discusses various facets of range planning and operations. Some mathematical formulations of certain aspects of these areas were made. With the ever increasing scope of our nation's space and missile program, ever greater responsibility falls upon the ranges for support. In order to fulfill their missions as best as possible, utilization of quantitative methods will become a self-evident necessity. (Author)

AD-624 575 See Fld. 22/1

How To Use Indexes To TAB Portion Of

U. S. GOVERNMENT RESEARCH AND DEVELOPMENT REPORTS

SUBJECT INDEX

The Subject Index is arranged alphabetically by asterisked descriptors from the document announcements in the TAB. Each announcement contains one or more asterisked descriptors which identify the main subjects of the report. The asterisked descriptor may or may not have a modifying descriptor appearing directly below the asterisked descriptor. Under each descriptor entry in the Subject Index appear the following items of information: annotation, AD number, and field/group. A typical subject index entry is shown below.

*ALUMINUM
GLASS TEXTILES
INVESTIGATION OF GLASS-
METAL COMPOSITE MATERIALS
AD-619 773 FLD. 11/7

PERSONAL AUTHOR INDEX

The Personal Author Index is arranged alphabetically by the last names of the authors of reports. When several report entries are given for one author, the entries are arranged numerically by AD number. Field/group and titles are also listed. Three asterisks serve as a separator between entries for reports under the same author. A typical personal author entry is shown below.

*CHASE, JOHN W.
* * *
THE LANTHANUM, EUROPIUM,
AND DYSPROSIUM CONTENTS OF
TWO TEKTITES
AD-619 828 FLD. 8/7
* * *
A PROCEDURE FOR GEOCHEMICAL
INTERPRETATION OF TERRESTRIAL
RARE-EARTH ABUNDANCE PATTERNS
AD-619 834 FLD. 8/7

CORPORATE AUTHOR-MONITORING AGENCY INDEX

The Corporate Author-Monitoring Agency Index is arranged alphabetically by corporate authors and monitoring agencies.

In the corporate author entry for each document are listed the originator of the report, the originator's report number, the title, AD number, and field/group. If the source has listed a monitoring agency in the report, the monitor acronym and monitor series number are given in parenthesis directly under the title. An IDEP (Interservice Data Exchange Program) report number is presented in the same way. A typical corporate author entry is shown on the next page.

798-319 O - 66 - 7

*AEROJET- GENERAL CORP AZUSA
CALIF
* * *
TR3015
STUDY OF THE REACTION
OF PENTABORANE WITH HYDRAZINE
AND SUBSTITUTED HYDRAZINES
(AFOSR 65-1058)
AD-619 513 FLD. 7/4

The three asterisks serve as a separator between entries for reports under the same corporate author.

When a report lists a monitoring agency, a corresponding entry is provided under the name of the monitoring agency, which appears in alphabetical order among the corporate author entries. In a monitoring agency entry, the report number is given above the title in place of the originator's report number. A typical monitoring agency entry is shown below.

*AIR FORCE OFFICE OF SCIENTIFIC
RESEARCH WASHINGTON D C
* * *
65-1058
STUDY OF THE REACTION
OF PENTABORANE WITH HYDRAZINE
AND SUBSTITUTED HYDRAZINES
AD-619 513 FLD. 7/4

CONTRACT INDEX

The Contract index is arranged alphanumerically by contract number. Within a contract grouping, each entry contains corporate author, series number (if any), monitor number (if any), AD number, and field/group.

When there are multiple document entries under one contract number, entries are arranged by AD number under each corporate author represented.

A contract entry may also contain a letter F, A, or S on the left-hand margin, indicating that the document is a Final, Annual, or Summary report. A typical contract entry is shown below.

*AF19 628 5167
LINCOLN LAB MASS INST OF TECH
LEXINGTON
(ESD TDR-65-315)
AD-619 580 FLD. 9/5
(ESD TDR-65-309)
AD-619 708 FLD. 3/1

REPORT NUMBER INDEX

The Report Number Index lists identifying numbers assigned either by the document originators or by the sponsors of the work described in the documents. The AD number and Field/Group location in TAB are given for each report number. If both the originator and the sponsor of a document have assigned identifying numbers, listings for both will appear in the respective alphanumeric positions.

In certain cases accession numbers are also given with the corresponding AD numbers and TAB locations; for instance, the IDEP (Interservice Data Exchange Program) reports and the CFSTI-TT reports (Technical Translations from the Clearinghouse for Federal Scientific and Technical Information).

CCL-183	
AD-620 154	FLD. 11/9
CRSR-203	
AD-620 250	FLD. 3/1
DPS-1677	
AD-469 558	FLD. 19/1A

AD-FIELD INDEX

The AD-Field Index is arranged numerically by AD number and lists the field/group where the full entry can be located in TAB.

SUBJECT INDEX

The fields/groups indicated here apply only to the Technical Abstract Bulletin Section (on white paper).

•ABLATION
CONICAL BODIES
EFFECTS OF MASS-TRANSFER ON THE DYNAMIC STABILITY OFSLENDER CONES.
AD-629 933 FLD. 20/4

•ABSORPTION
WATER WAVES
COMPLIANT WATER WAVE ABSORBERS.
AD-629 908 FLD. 13/10

•ABSORPTION SPECTRUM
ATMOSPHERE
ATLAS OF THE ABSORPTION OF THE ATMOSPHERE FROM 8912TO 11, 600A.
AD-629 329 FLD. 4/1

ELECTROOPTICS
ELECTROOPTICS: EXCITED STATE SATURABLE ABSORBER FOR1.06 MICRON WAVELENGTH.
AD-629 361 FLD. 20/6

SCANDIUM COMPOUNDS
ABSORPTION EDGE SPECTRUM OF SCANDIUM OXIDE.
AD-629 939 FLD. 7/4

•ABSORPTION(BIOLOGICAL)
OSMOTIC PRESSURE
REPRINT: PERITONEAL FLUID ABSORPTION. EFFECT OFDEHYDRATION ON KINETICS.
AD-629 343 FLD. 6/16

•ACCELERATION TOLERANCE
LABORATORY EQUIPMENT
STUDY OF THE USAF SCHOOL OF AEROSPACE MEDICINE HUMANCENTRIFUGE.
AD-629 546 FLD. 14/2
HUMAN CENTRIFUGE.
AD-629 636 FLD. 14/2

RESPIRATION
MAXIMUM VOLUNTARY VENTILATION AFTER G SUB X IMPACTIN HUMANS.
AD-629 626 FLD. 6/19

SAFETY HARNESS
PERSONNEL RESTRAINT AND SUPPORT SYSTEM DYNAMICS.
AD-629 487 FLD. 6/2

•ACCLIMATIZATION
ALKALOIDS
REPRINT: METABOLISM OF CARNITINE IN COLD-ACCLIMATED RATS.
AD-629 795 FLD. 6/19

OXIDOREDUCTASES
REPRINT: TISSUE LACTIC DEHYDROGENASE ISOZYMES: VARIATIONIN RATS DURING PROLONGED COLD EXPOSURE.
AD-629 796 FLD. 6/19

•ACETONITRILES
POLAROGRAPHIC ANALYSIS
REPRINT: REVIEW OF FUNDAMENTALS OF POLAROGRAPHY IN INERTORGANIC SOLVENTS.
AD-629 330 FLD. 7/4

•ACETYLCHOLINE
URINARY SYSTEM
IONIC FACTORS IN TOXIC ACTION.
AD-629 592 FLD. 6/15

•ACIDS
COLORIMETRIC ANALYSIS
METHOD AND APPARATUS FOR THE DETERMINATION OF STRONGACID VAPORS IN THE PARTS/MILLION RANGE.
AD-629 296 FLD. 7/2

•ACOUSTICS
AMPLIFIERS
MICROWAVE RESEARCH.
AD-629 967 FLD. 20/5

UNDERWATER
MEASUREMENTS ON ONE AND TWO LINES OF FREE-
FLOODEDMAGNETOSTRICTIVE RING TRANSDUCERS.
AD-629 709 FLD. 20/1

•ACRYLIC RESINS
GELS
REPRINT: HYDROGELS FROM 2-HYDROXYETHYL METHACRYLATEAND PROPYLENE GLYCOL MONOACRYLATE.
AD-629 980 FLD. 11/9

PHOTOCHEMISTRY
PHOTOLYSIS OF POLY(N-BUTYL METHACRYLATE) IN VACUUM.
AD-629 303 FLD. 8/1

•ADAPTIVE CONTROL SYSTEMS
ROCKETS
BOUNDED CONTROL OF SOME UNSTABLE MECHANICAL SYSTEMS.
AD-629 618 FLD. 16/1

•ADDITIVES
CADMIUM COMPOUNDS
IMPROVEMENT IN COMPRESSION SET RESISTANCE OR ELASTOMERICVULCANIZATES USING CADMIUM OXIDE.
AD-629 749 FLD. 11/10

•ADENOSINE PHOSPHATES
BIOCHEMISTRY
REPRINT: STIMULATION OF STEROID C-11-BETA AND C-18HYDROXYLATIONS IN RAT ADRENAL HOMOGENATES BY ADENOSINE3',5'-PHOSPHATE VIA A MECHANISM NOT REQUIRING ENDOGENOUSPRECURSOR, GLYCOGEN PHOSPHORYLATION OR NADPH GENERATION.
AD-629 412 FLD. 6/1

•ADHESIVES
HEAT-RESISTANT MATERIALS
TRANSLATION OF RUSSIAN RESEARCH: STUDY OF THE PROPERTIESAND OF THE FEASIBILITY OF USING ORGANOBOROSILICON POLYMERSAS CONSITUENTS OF HEAT-RESISTANT ADHESIVES.
AD-629 792 FLD. 11/1

•ADRENAL CORTEX
STEROIDS
REPRINT: STIMULATION OF STEROID C-11-BETA AND C-18HYDROXYLATIONS IN RAT ADRENAL HOMOGENATES BY ADENOSINE3',5'-PHOSPHATE VIA A MECHANISM NOT REQUIRING ENDOGENOUSPRECURSOR, GLYCOGEN PHOSPHORYLATION OR NADPH GENERATION.
AD-629 412 FLD. 6/1

•ADSORPTION
MONOMOLECULAR FILMS
ADSORPTION OF SURFACE-ACTIVE MATERIAL AT THE SURFACE OFSEA-WATER SAMPLES FROM THE BAY OF PANAMA.
AD-629 929 FLD. 8/10

•AERIAL CAMERAS
INSTALLATION
ENVIRONMENTAL CONTROL AND INSTALLATION OF A PRECISIONAERIAL CAMERA.
AD-629 742 FLD. 14/5

•AERIAL PHOTOGRAPHY
PHOTOGRAPHIC ACUITANCE
EVALUATION OF AN IMAGE QUALITY ENHANCEMENT TECHNIQUE.
AD-629 470 FLD. 14/5

PLANTS(BOTANY)
INVESTIGATION OF SUGAR CANE VIGOR WITH AERIAL PHOTOGRAPHYIN PUERTO RICO.
AD-629 629 FLD. 2/4

•AERODYNAMICS
BUFFETING
TRANSLATION OF RUSSIAN RESEARCH: DETERMINATION OFVERTICAL WIND GUSTS ON THE BASIS OF OSCILLATIONS OF AIRCRAFTIN FLIGHT WITH THE PILOT'S ACTION ON CONTROL LEVERS TAKEN INTOACCOUNT.
AD-629 759 FLD. 1/1

GAS FLOW
MACH NUMBER TABLES (GAMMA = 1.4) WITH CORRECTION FACTORSFOR REAL AIR.
AD-629 998 FLD. 20/4

•AGRICULTURE
PUERTO RICO
INVESTIGATION OF SUGAR CANE VIGOR WITH AERIAL PHOTOGRAPHYIN PUERTO RICO.
AD-629 629 FLD. 2/4

USSR
FARM EMPLOYMENT IN THE SOVIET UNION, 1928-1963.
AD-629 699 FLD. 5/3

•AIR
AERODYNAMIC CHARACTERISTICS
MACH NUMBER TABLES (GAMMA = 1.4) WITH CORRECTION FACTORSFOR REAL AIR.
AD-629 998 FLD. 20/4

•AIR POLLUTION
RESPIRATORY DISEASES
RESPIRATORY DISEASES DUE TO AIR POLLUTION ON TOKYOYOKOHAMA AREA.
AD-629 741 FLD. 6/5

•AIR TRANSPORTATION
FEASIBILITY STUDIES
DEVELOPMENT AND APPLICATION OF A METHOD TO DETERMINEAIRCRAFT FEASIBILITY FOR ISOLATED AREA SUPPORT.
AD-629 689 FLD. 1/3

•AIRCRAFT
BUFFETING
TRANSLATION OF RUSSIAN RESEARCH: DETERMINATION OFVERTICAL WIND GUSTS ON THE BASIS OF OSCILLATIONS OF AIRCRAFTIN FLIGHT WITH THE PILOT'S ACTION ON CONTROL LEVERS TAKEN INTOACCOUNT.
AD-629 759 FLD. 1/1

•AIRCRAFT ANTENNAS
PERFORMANCE(ENGINEERING)
RESEARCH ON NEW TYPES OF ANTENNA SYSTEMS FOR THE FREQUENCYRANGE 30-1000 MC.
AD-629 978 FLD. 9/5

•AIRCRAFT ENGINES
MANUFACTURING METHODS
TRANSLATION OF RUSSIAN RESEARCH: MANUFACTURE OF BASICCOMPONENTS AND ASSEMBLIES OF AIRCRAFT ENGINES.
AD-629 820 FLD. 21/5

•AIRCRAFT GUNS
LUBRICANTS
FACTORS AFFECTING THE ICING RESISTANCE OF LUBRICANTS FORAIRCRAFT ORDNANCE.
AD-629 599 FLD. 11/8

•ALASKA
ANNELIDA
REPRINT: BENTHIC POLYCHAETOUS ANNELIDS FROM BERING,CHUKCHI, AND BEAUFORT SEAS.
AD-629 922 FLD. 6/3

•ALCOHOLS
PYROLYSIS
REPRINT: PYROLYSIS STUDIES. THERMAL RETROGRADE

ALDOLCONDENSATION OF BETA-HYDROXY KETONES.
AD-629 379 FLD. 7/4

•ALGAE
OXYGEN
EFFECT OF LIGHT INTENSITY AND THICKNESS OF CULTURE SOLUTIONON OXYGEN PRODUCTION BY ALGAE.
AD-629 932 FLD. 6/11

•ALGEBRAS
GRAPHICS
SUBDIRECTLY IRREDUCIBLE UNARY ALGEBRAS.
AD-629 978 FLD. 12/2

SET THEORY
REPRINT: CATEGORICAL ALGEBRA.
AD-629 371 FLD. 12/1

•ALGORITHMS
LINEAR PROGRAMMING
ALTERNATIVE INTERPRETATION OF THE PRIMAL-DUAL METHODAND SOME RELATED PARAMETRIC METHODS.
AD-629 499 FLD. 12/2
SOME ASPECTS OF INTEGER LINEAR PROGRAMMING.
AD-629 553 FLD. 12/2
REPRINT: A COMPLETE CONSTRUCTIVE ALGORITHM FOR THEGENERAL MIXED LINEAR PROGRAMMING PROBLEM.
AD-629 676 FLD. 12/2

SYNTHESIS
TRANSLATION OF RUSSIAN RESEARCH: AUTOMATIC CONSTRUCTIONOF COMPUTATIONAL ALGORITHMS.
AD-629 829 FLD. 9/2

•ALKALINE CELLS
DESIGN
DESIGN, FABRICATION AND TESTING OF VENTED, RECHARGEABLESILVER-CADMIUM CELLS.
AD-629 907 FLD. 10/3
DESIGN, FABRICATION AND TESTING OF SEALED, RECHARGEABLESILVER-CADMIUM CELLS.
AD-629 910 FLD. 10/3

•ALKALOIDS
METABOLISM
REPRINT: METABOLISM OF CARNITINE IN COLD-ACCLIMATED RATS.
AD-629 795 FLD. 6/19

•ALKANES
RADIATION CHEMISTRY
MECHANISM OF THE TRITIUM BETA-RAY INDUCED EXCHANGEREACTIONS OF DEUTERIUM WITH METHANE AND ETHANE IN THEGAS PHASE.
AD-629 697 FLD. 8/1

•ALKYNES
NUCLEAR MAGNETIC RESONANCE
REPRINT: CARBON-13 MAGNETIC RESONANCE SPECTRA OF ISUBSTITUTED 1-HEXYNES.
AD-629 905 FLD. 7/3

•ALLOYS
MAGNETIC PROPERTIES
MAGNETIC CHARACTERISTICS OF 'NON-MAGNETIC' MATERIALSPERMEABILITY AND COERCIVE FORCE IN STRONG FIELDS 100-200OERSTEDS.
AD-629 284 FLD. 11/6

•ALTITUDE CHAMBERS
CONTROL SYSTEMS
OPERATION AND MAINTENANCE MANUAL FOR VACUUM AND INBLEEDCONTROL SYSTEM, AIR LOCK CONTROL SYSTEM, CHAMBER LINERDIFFERENTIAL PRESSURE CONTROL SYSTEM AND INTERIOR GASFLOW RECORDING SYSTEM FOR ALTITUDE RESEARCH CHAMBERSA1, A2, A3, AND A4.
AD-629 587 FLD. 14/2

•ALUMINUM
EQUATIONS OF STATE
MEASUREMENT OF THE GRUENEISEN PARAMETER AND THE INTERNALENERGY DEPENDENCE OF THE SOLID EQUATION OF STATE FORALUMINUM AND TEFLON.
AD-629 320 FLD. 20/13

GRAIN STRUCTURES(METALLURGY)
EFFECTS OF CYCLIC STRESSING ON PREFERRED ORIENTATION OFPOLYCRYSTALLINE ALUMINUM.
AD-629 651 FLD. 11/6

•ALUMINUM COMPOUNDS
OXIDES
MACHINING HIGH PURITY ALUMINA.
AD-629 484 FLD. 13/8

•AMINES
CHROMATOGRAPHIC ANALYSIS
REPRINT: PAPER CHROMATOGRAPHY OF AMINE HYDROCHLORIDESAND ACETATES IN ACIDIC SOLVENT SYSTEMS.
AD-629 294 FLD. 7/3

POLYCYCLIC COMPOUNDS
REPRINT: THE BROMOPYRENES AND THE AMINOPYRENESDERIVED THEREFROM.
AD-629 329 FLD. 7/3

•AMINO ACIDS
GAS CHROMATOGRAPHY
RESEARCH ON ANALYSIS OF AMINO ACIDS BY GAS CHROMATOGRAPHY.
AD-629 969 FLD. 6/1

•AMMONIA
BATTERIES + COMPONENTS
LIQUID AMMONIA BATTERIES.
AD-629 589 FLD. 10/3

FUELS
CALCULATION OF ENGINE PERFORMANCE USING AMMONIA FUEL.DIESEL CYCLE.
AD-629 969 FLD. 21/4

•AMMONIUM COMPOUNDS
PERCHLORATES
SHOCK INITIATION OF LOW-DENSITY PRESSINGS OF AMMONIUMPERCHLORATE.
AD-629 537 FLD. 19/1

TOXICITY
REPRINT: AMMONIUM TOXICITY, A POTENTIAL ARTIFACT INPREPARATION OF TOXINS.
AD-629 629 FLD. 6/13

•ANALOG COMPUTERS
MATHEMATICAL MODELS
REPRINT: USING AN ANALOG COMPUTER TO ANALYZE TRANSISTOR CIRCUIT PERFORMANCE.
AD-629 490 FLD. 9/1

•ANISOTROPY
CRYSTALS
TEMPERATURE DEPENDENCE OF MAGNETOCRYSTALLINEANISOTROPY, AND THE L(L1)/2 POWER LAW.
AD-629 718 FLD. 20/3

•ANNELIDA
MORPHOLOGY
REPRINT: BENTHIC POLYCHAETOUS ANNELIDS FROM BERING,CHUKCHI, AND BEAUFORT SEAS.
AD-629 922 FLD. 6/3

•ANOXIA
AVIATION MEDICINE
CARDIO-RESPIRATORY EVENTS IN FATAL ANOXIA.
AD-629 639 FLD. 6/19

•ANTARCTIC REGIONS
JOB ANALYSIS
OPERATION DEEP FREEZE SIX '61: DENTAL OFFICER'S REPORT.
AD-629 780 FLD. 5/9

•ANTENNA ARRAYS
IMPEDANCE MATCHING
SURFACE WAVE BEHAVIOR IN PHASED ARRAYS.
AD-629 308 FLD. 9/5

MILLIMETER WAVES
ELECTRONICALLY STEERABLE ARRAY: CHANGE A.
AD-629 791 FLD. 9/5

SPACE COMMUNICATION SYSTEMS
STUDY OF SPECIAL BEAMSHAPING ANTENNAS.
AD-629 603 FLD. 9/5

•ANTENNA LOBES
SEQUENTIAL ANALYSIS
SHF SEQUENTIAL LOBING SYSTEM.
AD-629 309 FLD. 9/5

•ANTENNA RADIATION PATTERNS
ANTENNA ARRAYS
SURFACE WAVE BEHAVIOR IN PHASED ARRAYS.
AD-629 308 FLD. 9/5

RADAR ANTENNAS
A BEAM-SHIFTING TECHNIQUE FOR SIDE LOBE REDUCTION ANDPATTERN SYNTHESIS.
AD-629 609 FLD. 20/14

•ANTIFERROMAGNETISM
MAGNETIC PROPERTIES
MAGNETOSTATIC MODES IN ANTIFERROMAGNETS AND CANTEDANTIFERROMAGNETS.
AD-629 445 FLD. 20/3

OPERATORS(MATHEMATICS)
WICK'S THEOREM FOR SPIN OPERATORS, WITH AN APPLICATIONTO SPIN WAVES IN ANTIFERROMAGNETS.
AD-629 720 FLD. 20/3

•ANTIGENS + ANTIBODIES
COCCIDIOIDES
ACTIVE IMMUNIZATION VS. COCCIDIOIDES IMMITIS.
AD-629 911 FLD. 6/13

SALMONELLA
REPRINT: GENETIC MAPPING OF VI AND SOMATIC ANTIGENICDETERMINANTS IN SALMONELLA.
AD-629 983 FLD. 6/13

•ANTIGEN-ANTIBODY REACTIONS
THYMUS
HOMOGRAFT RESPONSE AND HEMAGGLUTININ PRODUCTION BYSENSITIZED THYMECTOMIZED IRRADIATED ADULT MICE.
AD-629 985 FLD. 6/18

•ANTIMOTION SICKNESS AGENTS
EFFECTIVENESS
COMPARISON OF EFFECTIVENESS OF SOME ANTIMOTION SICKNESSDRUGS USING RECOMMENDED AND LARGER THAN RECOMMENDEDDOSES AS TESTED IN THE SLOW ROTATION ROOM.
AD-629 926 FLD. 6/19

•ANTISUBMARINE WARFARE
KILL PROBABILITIES
REPRINT: PROBABILITY THAT AN ACOUSTIC HOMING TORPEDO WILLACQUIRE A SUBMARINE.
AD-629 677 FLD. 15/1

•AORTA
MECHANICAL PROPERTIES
A METHOD FOR DEFINING MECHANICAL PROPERTIES OF CELLS ANDTISSUE.

AD-629 647 FLD. 6/16

REFLEXES
REPRINT: PRESSOCEPTIVE AND CHEMOCEPTIVE AORTIC REFLEXESIN DECORTICATE AND IN DECEREBRATE CATS.
AD-629 832 FLD. 6/16

•APPROXIMATION(MATHEMATICS)
CORRECTIONS
IMPROVING AN APPROXIMATE SOLUTION OF A FUNCTIONAL EQUATIONBY DEFERRED CORRECTIONS.
AD-629 837 FLD. 12/1

•AQUATIC ANIMALS
ANNELIDA
REPRINT: BENTHIC POLYCHAETOUS ANNELIDS FROM BERING,CHUKCHI, AND BEAUFORT SEAS.
AD-629 922 FLD. 6/3

•AREA COVERAGE
POLAR ORBIT TRAJECTORIES
PARAMETRIC PRESENTATION OF COVERAGE DATA FOR POLARVEHICLES.
AD-629 632 FLD. 22/3

•ARMED FORCES BUDGETS
MANAGEMENT PLANNING
CONCEPTS AND TECHNIQUES FOR SUMMARIZING DEFENSE SYSTEMCOSTS.
AD-629 997 FLD. 5/1

•ARMED FORCES PROCUREMENT
VALUE ENGINEERING
APPLICATION OF DEFENSE VALUE ENGINEERING.
AD-629 810 FLD. 14/1

•ARMED FORCES(FOREIGN)
MILITARY LAW
OMBUDSMAN CONCEPT AS REFLECTED IN THE INSPECTORSGENERAL, UNITED STATES ARMY AND AIR FORCE.
AD-629 648 FLD. 5/4

•ARMS CONTROL
TREATIES
UNITED NATIONS DISARMAMENT NEGOTIATIONS, 1953-1957.
AD-629 666 FLD. 5/4

•ARMY PERSONNEL
SYMPOSIA
SERGEANTS MAJOR PERSONNEL CONFERENCE.
AD-629 979 FLD. 5/9

•ARMY RESEARCH
SYMPOSIA
PRINCIPAL ADDRESSES OF THE 1969 U. S. ARMY NATIONALJUNIOR SCIENCE AND HUMANITIES SYMPOSIUM, 29-30 APRIL1969.
AD-629 282 FLD. 5/1

•ASPARTIC ACID
EXCHANGE REACTIONS
REPRINT: PROTON-DEUTERON EXCHANGE OF THE RADICAL ININRADIATED SINGLE CRYSTALS OF DL-ASPARTIC ACID: EFFECTOF THE CRYSTAL FIELD ON THE CHAMICAL REACTION.
AD-629 389 FLD. 8/1

•ASTRONAUTICS
RENDEZVOUS GUIDANCE
INVESTIGATION OF 'PREDICTOR' DISPLAYS FOR ORBITAL RENDEZVOUS, PROGRAM SUMMARY.
AD-629 967 FLD. 22/3

USSR
TRANSLATION OF EAST GERMAN ARTICLES: SOVIET SPACEEXPLORATION AS VIEWED BY EAST GERMAN SPECIALISTS.
AD-629 979 FLD. 22/1

•ATMOSPHERE
ABSORPTION SPECTRUM
ATLAS OF THE ABSORPTION OF THE ATMOSPHERE FROM 8512TO 11, 600A.
AD-629 329 FLD. 4/1

SCIENTIFIC RESEARCH
ATMOSPHERIC, EARTH AND OCEANOGRAPHIC RESEARCH.
AD-629 299 FLD. 4/1

•ATMOSPHERIC SOUNDING
IONOSPHERE
DESIGN OF AN IMPROVED RECEIVER FOR ROCKET EXPERIMENTS.
AD-629 654 FLD. 17/2

LUXEMBOURG EFFECT
MEASUREMENT OF PHASE AND AMPLITUDE RADIO WAVE INTERACTION AT UNIVERSITY PARK, PENNSYLVANIA, FOR APRIL-MAYJUNE, 1969.
AD-629 393 FLD. 4/1

SCIENTIFIC SATELLITES
DETERMINATION OF IONOSPHERIC LOSS COEFFICIENTS FROMOBSERVATIONS ON SATELLITE X-RAY FLUXES AND SUDDENIONOSPHERIC DISTURBANCES.
AD-629 392 FLD. 4/1

STRATOSPHERE
DYNAMICS OF STRATOSPHERIC CIRCULATIONS.
AD-629 591 FLD. 4/1

•ATMOSPHERIC TEMPERATURE
MEASUREMENT
IMPROVEMENT IN ACCURACY OF THE ML-419 RADIOSONDETEMPERATURE ELEMENT FOR HEIGHTS ABOVE 90,000 FEETAND UP TO 190,000 FEET.
AD-629 895 FLD. 4/1

•ATOMIC ENERGY LEVELS
PERTURBATION THEORY
REPRINT: PERTURBATION THEORY EXPANSIONS THROUGH 21STORDER OF THE NON-RELATIVISTIC ENERGIES OF THE TWO-ELECTRONSYSTEMS(2P)23P AND (1S)21S.
AD-629 378 FLD. 7/4

•ATOMIC SPECTROSCOPY
CHROMIUM
REPRINT: ATOMIC ABSORPTION SPECTROSCOPY OF CHROMIUM.
AD-629 396 FLD. 7/4

•ATOMIC STRUCTURE
WAVE FUNCTIONS
REPRINT: CALCULATING MATRIX ELEMENTS BETWEEN CONFIGURATIONSWITH SEVERAL OPEN 1 SHELLS.
AD-629 276 FLD. 7/4

•ATTITUDE CONTROL SYSTEMS
SATELLITES(ARTIFICIAL)
DIRECTIONAL EQUILIBRIUM OF AN ARTIFICIAL SATELLITEENVELOPING A NONUNIFORM REGION OF A GRAVITATIONAL FIELD.
AD-629 992 FLD. 22/2

•AUDIOMETRY
THRESHOLDS(PHYSIOLOGY)
REPRINT: BEKESY AUDIOMETRY AT 20 FREQUENCIES FROM 0.2TO 6 KC/SEC.
AD-629 782 FLD. 6/16

•AUDITORY NERVE
STIMULATION
BILATERAL REPRESENTATION OF THE HORIZONTAL SEMICIRCULARCANALS IN THE INFERIOR VESTIBULAR NUCLEUS OF CATS.
AD-629 663 FLD. 6/16

•AUTOMATA
ALGEBRAS
SUBDIRECTLY IRREDUCIBLE UNARY ALGEBRAS.
AD-629 578 FLD. 12/2

•AUTONOMIC NERVOUS SYSTEM
STRESS(PHYSIOLOGY)
SELECTION OF MEN FOR HAZARDOUS DUTY FROM INDICES OFINDIVIDUAL DIFFERENCES IN AUTONOMIC NERVOUS SYSTEMREACTIVITY.
AD-629 783 FLD. 6/19

•AVIATION ACCIDENTS
BIRDS
BIOLOGICAL STUDIES OF THE PROBLEM OF BIRD HAZARD TOAIRCRAFT.
AD-629 969 FLD. 1/2

•AVIATION PERSONNEL
SELECTION
DETERMINERS OF PSYCHOLOGICAL STRESS.
AD-629 950 FLD. 5/10

•BACKSCATTERING
RADAR
SIMULATION OF RADAR BACKSCATTERING IN A RIPPLE TANK.
AD-629 733 FLD. 20/14

•BACKWARD-WAVE OSCILLATORS
MILLIMETER WAVES
HALF MILLIMTER 'BACKWARD WAVE OSCILLATOR'.
AD-629 699 FLD. 9/1

•BACTERIOPHAGES
GENETICS
GENETIC ANALYSIS OF MICROORGANISM BY MIXED INFECTIONOF ACTIVE PHAGE PARTICLES AND PHAGE OR BACTERIAL DNA.
AD-629 749 FLD. 6/13

PROTEINS
TRANSLATION OF RUSSIAN RESEARCH: SOVIET SCIENTISTS HAVESUCCESSFULLY RECONSTRUCTED PROTEIN FROM BACTERIOPHAGE.
AD-629 969 FLD. 6/13

•BALLOON EQUIPMENT
MOISTURE
MOISTURE CONTAMINATION AT ALTITUDE BY BALLOON ANDASSOCIATED EQUIPMENT.
AD-629 711 FLD. 4/1

•BAND-PASS FILTERS
QUARTZ
PEM FOR FILTER, QUARTZ CRYSTAL, 112MC, TYPE EL-FR (X-2)AND CRYSTAL UNIT, FILTER, QUARTZ TYPES CR-(XH-69)/U ANDCR-(XH-65)/U.
AD-629 309 FLD. 9/1

RADIOFREQUENCY FILTERS
WIDEBAND ELECTRONICALLY TUNABLE FILTERS FOR VHF-UHFBAND.
AD-629 360 FLD. 9/1

•BATTERIES + COMPONENTS
ALKALINE CELLS
DESIGN, FABRICATION AND TESTING OF VENTED, RECHARGEABLESILVER-CADMIUM CELLS.
AD-629 907 FLD. 10/3
DESIGN, FABRICATION AND TESTING OF SEALED, RECHARGEABLESILVER-CADMIUM CELLS.
AD-629 910 FLD. 10/3

AMMONIA
LIQUID AMMONIA BATTERIES.
AD-629 589 FLD. 10/3

•BERYLLIUM
BUCKLING(MECHANICS)
BUCKLING STRENGTH OF CURVED BERYLLIUM PANELS IN COMPRESSION.
AD-629 699 FLD. 20/11

•BILE PIGMENTS
INTESTINES
REPRINT: BILIRUBIN-CARBON-14 METABOLISM IN ISOLATEDINTESTINAL LOOPS.
AD-629 915 FLD. 6/5

•BIOLOGICAL STAINS
LANTHANUM COMPOUNDS
REPRINT: STAINING PROPERTIES OF LANTHANUM ON CELLMEMBRANES.
AD-629 620 FLD. 6/3

•BIONICS
CEREBRAL CORTEX
PROPOSED COMPUTATIONS IN THE CEREBRAL CORTEX BASED ONFOURIER TRANSFORM AND SPATIAL FILTERING TECHNIQUES.
AD-629 977 FLD. 6/16

•BIRDS
AVIATION ACCIDENTS
BIOLOGICAL STUDIES OF THE PROBLEM OF BIRD HAZARD TOAIRCRAFT.
AD-629 969 FLD. 1/2

•BLOOD CHEMISTRY
GLUCAGON
REPRINT: EFFECT OF GLUCAGON ON BLOOD SUGAR AND INORGANICPHOSPHORUS LEVELS IN NORMOTHERMIC AND HYPOTHERMIC RATS.
AD-629 395 FLD. 6/16

•BLOOD CIRCULATION
FLOWMETERS
REPRINT: CALIBRATION OF ELECTROMAGNETIC FLOWMETERS FORBLOOD FLOW MEASUREMENT.
AD-629 622 FLD. 6/12

•BLOOD COAGULATION
SHOCK(PATHOLOGY)
REPRINT: INTRAVASCULAR COAGULATION IN IRREVERSIBLE SHOCK.
AD-629 263 FLD. 6/5

•BLOOD DISEASES
OXIDOREDUCTASES
REPRINT: REFRACTORY HEMOLYTIC DISEASE ASSOCIATED WITHGLUCOSE-6-PHOSPHATE DEHYDROGENASE DEFICIENCY ANDHEMOSIDEROSIS: REPORT OF A CASE.
AD-629 345 FLD. 6/5

•BODY
PERCEPTION(PSYCHOLOGY)
REPRINT: BODY-BUFFER ZONE. EXPLORATION OF PERSONAL SPACE.
AD-629 337 FLD. 5/10
REPRINT: HUMAN SPATIAL BEHAVIOR.
AD-629 338 FLD. 5/10

•BODY ARMOR
BODY TEMPERATURE
EFFECTS OF TWO TYPES OF BODY ARMOR ON BODY TEMPERATURS.
AD-629 738 FLD. 19/4

•BODY TEMPERATURE
BODY ARMOR
EFFECTS OF TWO TYPES OF BODY ARMOR ON BODY TEMPERATURS.
AD-629 738 FLD. 19/4

GLUCAGON
REPRINT: EFFECT OF GLUCAGON ON BLOOD SUGAR AND INORGANICPHOSPHORUS LEVELS IN NORMOTHERMIC AND HYPOTHERMIC RATS.
AD-629 395 FLD. 6/16

•BOMBERS
NATIONAL DEFENSE
THE B-70, A CHAPTER IN DEFENSE POLICY.
AD-629 679 FLD. 15/3

•BOROHYDRIDES
IONS
REPRINT: ISOMERIC B20H18(-4) IONS: PREPARATION ANDREARRANGEMENT.
AD-629 391 FLD. 7/2

METALORGANIC COMPOUNDS
REPRINT: CARBAMETALLIC BORON HYDRIDE DERIVATIVES: THEPI-C5H5FE(PI-B9C2H11)SYSTEM.
AD-629 388 FLD. 7/2
REPRINT: CARBAMETALLIC BORON HYDRIDE DERIVATIVES:APPARENT ANALOGS OF PI-CYCLOPENTADIENYLMANGANESE AND-RHENIUM TRICARBONYLS.
AD-629 389 FLD. 7/2
>
AD-629 390 FLD. 7/2

•BORON
SINGLE CRYSTALS
RESEARCH INVESTIGATIONS IN THE PHYSICAL CHEMISTRY ANDMETALLURGY OF SEMICONDUCTING MATERIALS.
AD-629 251 FLD. 20/12

•BORON COMPOUNDS
SILOXANES
SIB POLYMER DEVELOPMENT.
AD-629 944 FLD. 11/10

•BOUNDARY VALUE PROBLEMS
DIFFERENTIAL EQUATIONS
COMMENTS ON DIFFERENTIABILITY OF SOLUTIONS OF BOUNDARYVALUE PROBLEMS.
AD-629 299 FLD. 12/1

•BRAIN
NUCLEIC ACIDS
EFFECTS OF CHEMICAL STIMULATION AND LEARNING ON NUCLEICACIDS AND PROTEINS.
AD-629 705 FLD. 5/10

•BROMINE COMPOUNDS
CHEMICAL REACTIONS
REPRINT: NATURE OF THE CHEMICAL REACTIVITY OF RADIOBROMINEATOMS PRODUCED BY ISOMERIC TRANSITION.
AD-629 366 FLD. 8/1

POLYCYCLIC COMPOUNDS
REPRINT: THE BROMOPYRENES AND THE AMINOPYRENESDERIVED THEREFROM.
AD-629 329 FLD. 7/3

•BUBBLES
MEASUREMENT
DEVELOPMENT OF PROBES FOR MEASURING THE MAXIMUMRADIUS OF UNDERWATER EXPLOSION BUBBLES.
AD-629 510 FLD. 14/2

•BUCKLING(MECHANICS)
PANELS(STRUCTURAL)
BUCKLING STRENGTH OF CURVED BERYLLIUM PANELS IN COMPRESSION.
AD-629 699 FLD. 20/11

PLASTICITY
EFFECTS OF PLASTICITY ON THE BUCKLING AND POSTBUCKLINGOF CIRCULAR CYLINDRICAL SHELLS.
AD-629 660 FLD. 20/13

•BUFFETING
AIRCRAFT
TRANSLATION OF RUSSIAN RESEARCH: DETERMINATION OFVERTICAL WIND GUSTS ON THE BASIS OF OSCILLATIONS OF AIRCRAFTIN FLIGHT WITH THE PILOT'S ACTION ON CONTROL LEVERS TAKEN INTOACCOUNT.
AD-629 759 FLD. 1/1

•BUOYS
OCEANOGRAPHIC VESSELS
FLIP FLOATING INSTRUMENT PLATFORM.
AD-629 601 FLD. 13/10

•CADMIUM COMPOUNDS
OXIDES
IMPROVEMENT IN COMPRESSION SET RESISTANCE OR ELASTOMERICVULCANIZATES USING CADMIUM OXIDE.
AD-629 749 FLD. 11/10

•CALCIUM
ISOTOPES
CHARGE DISTRIBUTIONS OF CA40 AND CA44 FROM 250 MEVELECTRON SCATTERING.
AD-629 272 FLD. 20/8

•CALCULUS OF VARIATIONS
TRANSPORT PROPERTIES
RADIATIVE TRANSPORT AND THE CALCULUS OF VARIATIONS, THEINVARIANT VARIATIONAL PRINCIPLE AND NORMAL INITIAL ANDBOUNDARY DATA.
AD-629 777 FLD. 12/1

•CALORIMETERS
VOLUMETRIC ANALYSIS
REPRINT: SENSITIVE, AUTOMATICALLY RECORDING QUASIISOTHERMAL CALORIMETER.
AD-629 325 FLD. 14/2

•CANCER
REPRODUCTIVE SYSTEM
REPRINT: POSTIRRADIATION SARCOMAS OF THE UTERUS.
AD-629 259 FLD. 6/5

TENDONS
REPRINT: CLEAR-CELL SARCOMA OF TENDONS AND APONEUROSES.AN ANALYSIS OF 21 CASES.
AD-629 258 FLD. 6/5

•CAPACITORS
RELIABILITY(ELECTRONICS)
PRODUCTION ENGINEERING MEASURE FOR MECHANIZATION OF HIGHRELIABILITY CAPACITORS.
AD-629 519 FLD. 9/1

•CARBON DIOXIDE
ABSORPTION
ABSORPTION BY CO2 BETWEEN 6600 AND 7129/CM(1.4 MICRON REGION) IN PLANETARY ATMOSPHERES.
AD-629 568 FLD. 3/3

•CARDIOVASCULAR SYSTEM
ANOMALIES
REPRINT: ANOMALOUS PULMONARY VENOUS RETURN.
AD-629 260 FLD. 6/5

ANOXIA
CARDIO-RESPIRATORY EVENTS IN FATAL ANOXIA.
AD-629 635 FLD. 6/19

•CASCADE STRUCTURES
MATHEMATICAL ANALYSIS
TRANSLATION OF RUSSIAN RESEARCH: AN ANALYSIS OF THERESULTS OF INVESTIGATIONS OF A MODEL TURBINE STAGEUSING COMPUTERS.
AD-629 836 FLD. 10/1

•CATAMARANS
HULLS(MARINE)
MERIT COMPARISONS OF THE SERIES 64 HIGH-SPEEDDISPLACEMENT HULL FORMS.
AD-629 688 FLD. 13/10

•CAVITATION
FLUID FLOW
TRANSLATION OF RUSSIAN RESEARCH: NEWS OF SCHOOLS OFHIGHER EDUCATION. MATHEMATICS. (SELECTED ARTICLES).

AD-629 851 FLD. 12/1

•CELESTIAL MECHANICS
SATELLITES(ARTIFICIAL)
NON-ZONAL HARMONIC COEFFICIENTS OF THE GEOPOTENTIAL FROMSATELLITE DOPPLER DATA.
AD-629 475 FLD. 8/4

•CENTRIFUGES
ACCELERATION TOLERANCE
STUDY OF THE USAF SCHOOL OF AEROSPACE MEDICINE HUMANCENTRIFUGE.
AD-629 546 FLD. 14/2
HUMAN CENTRIFUGE.
AD-629 636 FLD. 14/2

•CERAMIC MATERIALS
MACHINING
MACHINING HIGH PURITY ALUMINA.
AD-629 484 FLD. 13/8

•CEREBRAL CORTEX
MATHEMATICAL MODELS
PROPOSED COMPUTATIONS IN THE CEREBRAL CORTEX BASED ONFOURIER TRANSFORM AND SPATIAL FILTERING TECHNIQUES.
AD-629 477 FLD. 6/16

•CESIUM ELECTRON TUBES
RELIABILITY(ELECTRONICS)
CESIUM BEAM TUBE RESEARCH.
AD-629 613 FLD. 9/1

•CETACEA
PARASITES
REPRINT: COLLECTION OF WHALE-LICE (CYAMIDAE: AMPHIPODA).
AD-629 421 FLD. 6/3

•CHARGED PARTICLES
FORCE(MECHANICS)
REPRINT: LORENTZ FORCE.
AD-629 723 FLD. 20/3

QUANTUM MECHANICS
REPRINT: LENGTH SCALE IN QUANTUM ELECTRODYNAMICS WITHOUTA BARE MASS.
AD-629 399 FLD. 20/8

•CHEMICAL BONDS
MOLECULAR ORBITALS
COVALENCY PARAMETERS AND THE G FACTOR FOR NI(2): KMGF3.
AD-629 449 FLD. 7/4

MOSSBAUER EFFECT
REPRINT: MOSSBAUER STUDIES OF CHEMICAL BONDING.
AD-629 363 FLD. 8/1

REVIEWS
REPRINT: INTERMOLECULAR FORCES.
AD-629 831 FLD. 7/4

•CHEMISORPTION
NITROGEN
REPRINT: CHEMISORPTION ON SINGLE-CRYSTAL PLANES: NITROGENON TUNGSTEN.
AD-629 287 FLD. 7/4

•CHIMPANZEES
DIET
INFLUENCE OF DIET ON THE NORMAL FECAL FLORA OF THE CHIMPANZEE.
AD-629 612 FLD. 6/3

•CHLORINATION
REACTION KINETICS
REACTIONS OF CHLORINE DIOXIDE AND OTHER OXY-CHLORO COMPOUNDS WITH ORGANIC COMPOUNDS. KINETICS OF REACTIONBETWEEN CHLORINE DIOXIDE AND PHENOL.
AD-629 316 FLD. 7/3

•CHLORINE
CHEMICAL REACTIONS
KINETICS OF THE ATTACK OF MOLYBDENUM BY DISSOCIATED CHLORINE.
AD-629 593 FLD. 7/4

•CHLORINE COMPOUNDS
SUBSTITUTION REACTIONS
REACTIONS OF CHLORINE DIOXIDE AND OTHER OXY-CHLORO COMPOUNDS WITH ORGANIC COMPOUNDS. KINETICS OF REACTIONBETWEEN CHLORINE DIOXIDE AND PHENOL.
AD-629 316 FLD. 7/3

•CHOLERA
RABBITS
REPRINT: INTESTINAL MANIFESTATIONS OF CHOLERA IN INFANTRABBITS: A MORPHOLOGIC STUDY.
AD-629 349 FLD. 6/5

TOXINS + ANTITOXINS
REPRINT: AMMONIUM TOXICITY, A POTENTIAL ARTIFACT INPREPARATION OF TOXINS.
AD-629 624 FLD. 6/13

•CHOLINESTERASE INHIBITORS
KIDNEYS
IONIC FACTORS IN TOXIC ACTION.
AD-629 552 FLD. 6/15

•CHROMATOGRAPHIC ANALYSIS
PYROLYSIS
TRANSLATION OF CZECHOSLOVAKIAN RESEARCH. PYROLYTIC CELLFOR THE CHROMATOGRAPHIC STUDY OF POLYMERS.
AD-629 891 FLD. 14/2

•CHROMIUM
ABSORPTION SPECTRUM
REPRINT: ATOMIC ABSORPTION SPECTROSCOPY OF CHROMIUM.
AD-629 346 FLD. 7/4

•CIRCUITS
INFORMATION THEORY
REPRINT: CUT-SET MATRICES AND LINEAR CODES.
AD-629 380 FLD. 9/4

MICROMINIATURIZATION(ELECTRONICS)
MICROELECTRONIC ENGINEERING. VOLUME I. FABRICATIONTECHNOLOGY.
AD-629 315 FLD. 9/1

•CIVIL DEFENSE SYSTEM
RADIOACTIVE FALLOUT
SENSITIVITY ANALYSIS OF CIVIL DEFENSE SYSTEMS AND COMPONENTS. A COST-EFFECTIVENESS COMPUTER PROCEDURE FOROPTIMUM ALLOCATION OF FALLOUT SHELTER SYSTEM FUND UNDERUNIFORM OR VARIABLE RISK ASSUMPTIONS.
AD-629 701 FLD. 15/3
SENSITIVITY ANALYSIS OF CIVIL DEFENSE SYSTEMS AND COMPONENTS. A GENERALIZED SENSITIVITY ANALYSIS OF CDSYSTEMS.
AD-629 703 FLD. 15/3
SENSITIVITY ANALYSIS OF CIVIL DEFENSE SYSTEMS AND COMPONENTS. INTRODUCTION AND SUMMARY.
AD-629 709 FLD. 15/3

•CIVIL DEFENSE SYSTEMS
RADIOACTIVE FALLOUT
A SENSITIVITY ANALYSIS OF SELECTED PARAMETERS BASED ON8 SMSA'S.
AD-629 702 FLD. 15/3

WEST GERMANY
CIVIL DEFENSE IN GERMANY.
AD-629 706 FLD. 15/3

•CIVILIAN PERSONNEL
MILITARY FACILITIES
DEVELOPMENT OF A NON-VERBAL LEARNING ABILITY TEST FORNON-U.S. CITIZEN PERSONNEL OVERSEAS.
AD-629 692 FLD. 5/9

•CLAY
SOIL MECHANICS
EFFECT OF CHEMICAL WETTING AGENTS ON THE COMPACTION OFCLAY AND SILT SOILS.
AD-629 659 FLD. 8/13

•COATINGS
CORROSION INHIBITION
EVALUATION OF CORROSION PROTECTION BY COATINGSAPPLIED TO AIRCRAFT FASTENERS.
AD-629 539 FLD. 11/6

•COBALT COMPOUNDS
DOPING
FEASIBILITY STUDY TO INCREASE THE ACTIVITY OF OXIDES WITHOXYGEN AND TO LOWER THE IGNITION TEMPERATURE OF SLURRYMETALS.
AD-629 540 FLD. 21/9.2

•COCCIDIOIDES
IMMUNITY
ACTIVE IMMUNIZATION VS. COCCIDIOIDES IMMITIS.
AD-629 511 FLD. 6/13

•CODING
ELECTRICAL NETWORKS
REPRINT: CUT-SET MATRICES AND LINEAR CODES.
AD-629 380 FLD. 9/4

•COLD WAR
ATTITUDES
REPRINT: EFFECTS OF THE CUBAN CRISIS UPON ATTITUDESRELATED TO WAR AND PEACE.
AD-629 793 FLD. 5/10

•COLLOIDS
SHEAR STRESSES
REPRINT: PARTICLE MOTIONS IN SHEARED SUSPENSIONS,ORIENTATIONS OF RODS AND DISKS IN HYPERBOLIC AND OTHERFLOWS.
AD-629 243 FLD. 7/4

•COLORS
MILITARY REQUIREMENTS
COLORIMETRIC MEASUREMENTS OF SELECTED COLOR CARDS.
AD-629 739 FLD. 20/6

•COMBUSTION
GAS TURBINES
TRANSLATION OF RUSSIAN RESEARCH: THE ROLE OF KINETIC ANDDIFFUSIONAL FACTORS IN THE COMBUSTION OF FUELS IN GASTURBINE ENGINES.
AD-629 729 FLD. 21/9

STABILITY
REPRINT: MECHANISMS OF COMBUSTION INSTABILITY.
AD-629 839 FLD. 21/2

•COMMUNICATION EQUIPMENT
USSR
TRANSLATION OF RUSSIAN RESEARCH: REVIEW OF SOVIETLITERATURE ON COMMUNICATION SYSTEMS AND EQUIPMENT.
AD-629 749 FLD. 17/2
TRANSLATION OF RUSSIAN RESEARCH: COMMUNICATIONS NETWORKS.PART II. DESIGNATIONS AND ABBREVIATIONS.
AD-629 821 FLD. 17/2

•COMMUNICATION SATELLITES(ACTIVE)
DEPARTMENT OF DEFENSE
ANALYSIS TO DETERMINE IF THE DEPARTMENT OF DEFENSESHOULD OWN OR LEASE COMMUNICATIONS SATELLITES.
AD-629 678 FLD. 17/2.1

SYSTEMS ENGINEERING
SATELLITE COMMUNICATION CONTROL

FACILITY.
AD-629 693 FLD. 17/2.1

•COMMUNICATION SATELLITES(PASSIVE)
DEPARTMENT OF DEFENSE
ANALYSIS TO DETERMINE IF THE DEPARTMENT OF DEFENSESHOULD OWN OR LEASE COMMUNICATIONS SATELLITES.
AD-629 678 FLD. 17/2.1

•COMMUNICATION SYSTEMS
DATA STORAGE SYSTEMS
COMPUTER TECHNOLOGY: IMPACT ON COMMUNICATIONS BUSINESSWITH ATTENDANT SOCIAL CONSEQUENCES.
AD-629 931 FLD. 9/2

SATELLITE NETWORKS
SATELLITE COMMUNICATION CONTROL FACILITY.
AD-629 693 FLD. 17/2.1

SOUTHEAST ASIA
SEACORE, SOUTHEAST ASIA COMMUNICATIONS RESEARCH.
AD-629 710 FLD. 17/2.1

USSR
TRANSLATION OF RUSSIAN RESEARCH: REVIEW OF SOVIETLITERATURE ON COMMUNICATION SYSTEMS AND EQUIPMENT.
AD-629 749 FLD. 17/2
SOVIET TRANSPORT AND COMMUNICATIONS: OUTPUT INDEXES,1928-1962.
AD-629 818 FLD. 9/3
TRANSLATION OF RUSSIAN RESEARCH: COMMUNICATIONS NETWORKS.PART II. DESIGNATIONS AND ABBREVIATIONS.
AD-629 821 FLD. 17/2

•COMPLEX COMPOUNDS
GALLIUM COMPOUNDS
REPRINT: HALOGEN DERIVATIVES OF CO-ORDINATED GALLIUMHYDRIDE.
AD-629 372 FLD. 7/2

PYROLYSIS
REPRINT: THE THERMAL DISSOCIATION OF SOME BIS AND TETRAKIS(PYRIDINE) METAL COMPLEXES.
AD-629 332 FLD. 7/2

SYNTHESIS(CHEMISTRY)
REPRINT: THE PREPARATION AND INFRARED EXAMINATION OF THE2-, 3-, AND 4-CYANOPYRIDINE COMPLEXES OF COPPER(I),SILVER(I), AND GOLD(I) PERCHLORATES.
AD-629 326 FLD. 7/2

•COMPLEX VARIABLES
THEOREMS
REPRINT: RIEMANN SURFACES WITH THE ABSOLUTE AB-MAXIMUMPRINCIPLE.
AD-629 399 FLD. 12/1

•COMPOSITE MATERIALS
STRESSES
INTERIOR ELASTIC STRESS FIELD IN A CONTINUOUS, CLOSEPACKED FILAMENTARY COMPOSITE MATERIAL UNDER UNAXIALTENSION.
AD-629 972 FLD. 11/4

•COMPRESSIBLE FLOW
SLENDER BODIES
COMPRESSIBLE VISCOUS FLOW OVER SLENDER BODIES WITHPRESSURE GRADIENT, VARIABLE FLUID PROPERTIES, ARBITRARYLAWS OF SURFACE TEMPERATURE AND FOREIGN GAS INJECTIONVELOCITY DISTRIBUTION.
AD-629 946 FLD. 20/4

•COMPUTER LOGIC
PATTERN RECOGNITION
NOTES ON CLASSIFICATION CAPACITIES.
AD-629 937 FLD. 9/2

PROGRAMMING(COMPUTERS)
SYSTRAN (SYSTEMS ANALYSIS TRANSLATOR): A DIGITALCOMPUTER PROGRAM.
AD-629 968 FLD. 9/2

•COMPUTER STORAGE DEVICES
DIGITAL COMPUTERS
CRYOELECTRIC RANDOM ACCESS MEMORY.
AD-629 606 FLD. 9/2

USSR
TRANSLATION OF RUSSIAN RESEARCH: MAGNETIC OPERATIONALMEMORY DEVICE OF AN INFORMATION-LOGICAL MACHINE.
AD-629 893 FLD. 9/2

•COMPUTERS
USSR
TRANSLATION OF RUSSIAN RESEARCH: SOVIET CYBER.
AD-629 290 FLD. 9/2

•CONCRETE
ARCTIC REGIONS
PRELIMINARY INVESTIGATIONS OF PERMACRETE.
AD-629 798 FLD. 13/3

•CONFINED ENVIRONMENTS
STRESS(PSYCHOLOGY)
REPRINT: DEPERSONALIZATION IN SPACEMEN AND SUBMARINERS.
AD-629 336 FLD. 5/10

•CONTROLLED ATMOSPHERES
PEROXIDES
POTASSIUM SUPEROXIDE ATMOSPHERE CONTROL UNIT.
AD-629 956 FLD. 6/11

•CONVECTION(ATMOSPHERIC)
LAMINAR FLOW
ATMOSPHERIC CONVECTION PRODUCED BY LOCAL HEATING ORCOOLING OF A HORIZONTAL SURFACE.
AD-629 774 FLD. 4/2

•CONVECTION(HEAT TRANSFER)
FINS
EFFECT OF GEOMETRY ON LOCAL CONVECTIVE COEFFICIENTS FORAN UNBAFFLED CIRCULAR FIN ASSEMBLY.
AD-629 696 FLD. 20/13

•CONVEX SETS
GAME THEORY
NOTES ON N-PERSON GAMES. CORES OF CONVEX GAMES.
AD-629 310 FLD. 12/2

•COOLANTS
AROMATIC COMPOUNDS
TRANSLATION OF RUSSIAN RESEARCH: DETERMINATION OFCRITICAL HEAT FLOWS DURING THE BOILING OF A HIGH-BOILINGHEAT TRANSFER AGENT IN PIPES.
AD-629 801 FLD. 20/13

•COPOLYMERIZATION
CHEMICAL EQUILIBRIUM
REPRINT: GENERAL TREATMENT OF EQUILIBRIUM COPOLYMERIZATION.
AD-629 279 FLD. 7/4

•COPPER COMPOUNDS
COMPLEX COMPOUNDS
REPRINT: THE PREPARATION AND INFRARED EXAMINATION OF THE2-, 3-, AND 4-CYANOPYRIDINE COMPLEXES OF COPPER(I),SILVER(I), AND GOLD(I) PERCHLORATES.
AD-629 326 FLD. 7/2

•CORNEA
IMPLANTS
REPRINT: PERMEABILITIES OF POLYMERS AND THEIR MEDICALAPPLICATIONS: CORNEAL POLYMER IMPLANTS.
AD-629 903 FLD. 6/5

MODELS(SIMULATIONS)
REPRINT: HYDROGELS FROM 2-HYDROXYETHYL METHACRYLATEAND PROPYLENE GLYCOL MONOACRYLATE.
AD-629 980 FLD. 11/9

TRANSPLANTATION
REPRINT: EL DESTINO DE TRANSPLANTE DE CORNEA (RESULTSOF CORNEA TRANSPLANTS).
AD-629 619 FLD. 6/5

•CORROSION
ELECTROSTATICS
POTENTIOSTATIC CORROSION STUDIES OF IRON, TYPE-304 ANDTYPE-321 STAINLESS STEEL.
AD-629 269 FLD. 11/6

REACTION KINETICS
KINETICS OF THE ATTACK OF MOLYBDENUM BY DISSOCIATED CHLORINE.
AD-629 543 FLD. 7/4

•CORROSION INHIBITION
MOORING BUOYS
PROTECTION OF MOORING BUOYS. PART VII. RESULTS OF SIXTHRATING INSPECTION.
AD-629 799 FLD. 13/10

•CORROSIVE GASES
CHLORINE
KINETICS OF THE ATTACK OF MOLYBDENUM BY DISSOCIATED CHLORINE.
AD-629 543 FLD. 7/4

GAS ANALYSIS
METHOD AND APPARATUS FOR THE DETERMINATION OF STRONGACID VAPORS IN THE PARTS/MILLION RANGE.
AD-629 296 FLD. 7/2

•CORTICOSTEROID AGENTS
BIOSYNTHESIS
REPRINT: STIMULATION OF STEROID C-11-BETA AND C-18HYDROXYLATIONS IN RAT ADRENAL HOMOGENATES BY ADENOSINE3',5'-PHOSPHATE VIA A MECHANISM NOT REQUIRING ENDOGENOUSPRECURSOR, GLYCOGEN PHOSPHORYLATION OR NADPH GENERATION.
AD-629 912 FLD. 6/1

•COSMIC RAYS
PARTICLE ACCELERATOR TECHNIQUES
USE OF COSMIC RAYS TO STUDY PHYSICS IN THE RANGE 100-1000GEV.
AD-629 518 FLD. 20/8

•COST EFFECTIVENESS
ARMED FORCES PROCUREMENT
APPLICATION OF DEFENSE VALUE ENGINEERING.
AD-629 810 FLD. 14/1

DEPARTMENT OF DEFENSE
CONCEPTS AND TECHNIQUES FOR SUMMARIZING DEFENSE SYSTEMCOSTS.
AD-629 997 FLD. 9/1

FALLOUT SHELTERS
SENSITIVITY ANALYSIS OF CIVIL DEFENSE SYSTEMS AND COMPONENTS. A COST-EFFECTIVENESS COMPUTER PROCEDURE FOROPTIMUM ALLOCATION OF FALLOUT SHELTER SYSTEM FUND UNDERUNIFORM OR VARIABLE RISK ASSUMPTIONS.
AD-629 701 FLD. 19/3

•CRUSTACEA
BRITISH COLUMBIA
REPRINT: AN ASPECT OF EUPHAUSIID ECOLOGY REVEALED BYECHO-SOUNDING IN A FJORD.
AD-629 920 FLD. 8

PARASITES
REPRINT: COLLECTION OF WHALE-LICE (CYAMIDAE: AMPHIPODA).
AD-629 921 FLD. 6/3

•CRYOGENIC STORAGE DEVICES
THIN FILMS(STORAGE DEVICES)
CRYOELECTRIC RANDOM ACCESS MEMORY.
AD-629 606 FLD. 9/2

•CRYOGENICS
PARAMETRIC AMPLIFIERS
WIDE BAND CRYOGENIC PARAMETRIC AMPLIFIER.
AD-629 599 FLD. 9/1

•CRYSTAL FILTERS
QUARTZ
PEM FOR FILTER, QUARTZ CRYSTAL, 112 MC, TYPE EL-FR (X-2)AND CRYSTAL UNIT, FILTER, QUARTZ TYPES CR-(XM-69)/U ANDCR-(XM-69)/U.
AD-629 692 FLD. 9/5

•CRYSTAL GROWTH
REFRACTORY MATERIALS
SYMMETRICAL LASER CRYSTALS.
AD-629 514 FLD. 20/5

•CRYSTAL LATTICE DEFECTS
RELAXATION TIME
REPRINT: MECHANICAL RELAXATION OF A POINT DEFECT INMAGNESIUM OXIDE.
AD-629 383 FLD. 20/2

•CRYSTALS
LASERS
CRYSTALS FOR OPTICAL MASER APPLICATIONS.
AD-629 598 FLD. 20/5
YAG CRYSTALS.
AD-629 596 FLD. 20/2

X-RAY DIFFRACTION ANALYSIS
X-RAY STUDIES OF SIMPLE CRYSTALS.
AD-629 435 FLD. 20/2
X-RAY DIFFRACTION STUDIES OF THERMAL MOTIONS IN CRYSTALS.
AD-629 823 FLD. 20/2

•CULICIDAE
THAILAND
REPRINT: DISTRIBUTION IN ALTITUDE OF MOSQUITOES IN NORTHERNTHAILAND.
AD-629 261 FLD. 6/3

•CULTURE MEDIA
STAPHYLOCOCCUS AUREUS
NUTRITIONAL REQUIREMENTS OF ENTEROTOXIGENIC STRAINS OFSTAPHYLOCOCCUS AUREUS.
AD-629 249 FLD. 6/13

•CYBERNETICS
THEORY
TRANSLATION OF RUSSIAN ARTICLE: CAN A MACHINE THINK.
AD-629 859 FLD. 6/4

USSR
TRANSLATION OF RUSSIAN RESEARCH: SOVIET CYBER.
AD-629 290 FLD. 9/2

•CYCLOALKENES
NUCLEAR MAGNETIC RESONANCE
REPRINT: BRIDGED POLYCYCLIC COMPOUNDS. THE PROTONMAGNETIC RESONANCE SPECTRA OF SOME DIBENZOBICYCLO/3.2.1/OCTADIENES.
AD-629 373 FLD. 7/3

•CYCLOHEXANONES
PHOTOCHEMISTRY
REPRINT: PHOTOLYSIS OF ALPHA-SUBSTITUTED CYCLOHEXANONES.
AD-629 250 FLD. 8/1

•CYCLOHEXENES
CHEMICAL REACTIONS
REPRINT: REACTIVE INTERMEDIATES IN THE BICYCLO/3.1.0/HEXYL AND BICYCLO/3.1.0/ HEXYLIDENE SYSTEMS. THE ACIDCATALYZED ADDITION OF METHANOL AND ACETIC ACID TO BICYCLO/3.1.0/HEXENE-2.
AD-629 369 FLD. 7/3

•CYCLOPENTENES
BOROHYDRIDES
REPRINT: CARBAMETALLIC BORON HYDRIDE DERIVATIVES:APPARENT ANALOGS OF PI-CYCLOPENTADIENYLMANGANESE AND-RHENIUM TRICARBONYLS.
AD-629 389 FLD. 7/2

•CYLINDRICAL BODIES
BUCKLING(MECHANICS)
EFFECTS OF PLASTICITY ON THE BUCKLING AND POSTBUCKLINGOF CIRCULAR CYLINDRICAL SHELLS.
AD-629 660 FLD. 20/13

•DAMPING
UNDERWATER SOUND
THE EFFECT OF STRUCTURAL DAMPING ON THE ACOUSTICAL FIELDSURROUNDING A SUBMERGED VIBRATING SANDWICH SHELL.
AD-629 492 FLD. 20/11

•DATA PROCESSING SYSTEMS
ELECTROOPTICS
OPTICAL AND ELECTRO-OPTICAL INFORMATION PROCESSING.
AD-629 812 FLD. 9/2

INFORMATION THEORY
A METHOD FOR INVESTIGATING THE BEHAVIOR OF ATTRIBUTES WHICHBELONG TO INFORMATION STORAGE AND RETRIEVAL SYSTEMS.
AD-629 658 FLD. 9/2

METEOROLOGICAL PARAMETERS
SAMPLING AND DIGITIZING OF METEOROLOGICAL DATA.
AD-629 627 FLD. 4/2

TARGET RECOGNITION
DATA RECOVERY CENTER TARGET SIMULATOR.
AD-629 362 FLD. 9/2

TRACKING
HUMAN VS FILTER AS DATA EXTRAPOLATOR IN A TWO-COORDINATE,SAMPLED-DATA TRACKING SYSTEM.
AD-629 494 FLD. 5/8

USSR
TRANSLATION OF RUSSIAN RESEARCH: SOVIET CYBER.
AD-629 290 FLD. 9/2

•DATA STORAGE SYSTEMS
COMMUNICATION SYSTEMS
COMPUTER TECHNOLOGY: IMPACT ON COMMUNICATIONS BUSINESSWITH ATTENDANT SOCIAL CONSEQUENCES.
AD-629 431 FLD. 9/2

•DATA TRANSMISSION SYSTEMS
INFORMATION THEORY
STOCHASTIC FLOW OF MESSAGES AND ITS EFFICIENT TRANSMISSIONTHROUGH COMMUNICATION NETS.
AD-629 255 FLD. 9/4

•DECABORANES
CHEMICAL REACTIONS
REPRINT: REACTION OF B10H10(-2) WITH ARYLDIAZONIUMSALTS.
AD-629 386 FLD. 7/2

•DECISION MAKING
MATHEMATICAL MODELS
MEASURING THE VALUE OF INFORMATION, WITH IMPLICATIONSFOR COMMUNICATIONS SYSTEMS.
AD-629 789 FLD. 9/4

POLITICAL SCIENCE
MATHEMATICAL DECISION MAKING APPROACH TO THE CONTROLOF INTERNATIONAL CONFLICT.
AD-629 690 FLD. 5/4

STRESS(PSYCHOLOGY)
GROUP DECISION MAKING AND COMMUNICATION PATTERNS UNDERCONDITIONS OF STRESS AND OVERLOAD WHEN THE PARTICIPANTSARE PERMITTED TO FUNCTION AS A SELF-ORGANISING SYSTEM.
AD-629 597 FLD. 5/10

•DEFENSE SYSTEMS
SYSTEMS ENGINEERING
MILITARY PROBLEMS: APPLICATION OF SYSTEMS ANALYSIS.
AD-629 963 FLD. 15/7

•DEFICIENCY DISEASES
NUCLEOPROTEINS
REPRINT: NUCLEOPROTEIN CHANGES IN THE INTESTINAL MUCOSA OFPATIENTS WITH TROPICAL SPRUE.
AD-629 623 FLD. 6/5

•DEFLAGRATION
SOLID ROCKET OXIDIZERS
RESEARCH ON THE DEFLAGRATION OF HIGH-ENERGY SOLID OXIDIZERS.
AD-629 533 FLD. 21/9.2

•DEHYDRATED FOODS
MEAT
COMPARISON OF TENDERNESS PARAMETERS IN DEHYDRATEDMEAT.
AD-629 306 FLD. 6/8

•DEHYDRATION
ABSORPTION(BIOLOGICAL)
REPRINT: PERITONEAL FLUID ABSORPTION. EFFECT OFDEHYDRATION ON KINETICS.
AD-629 343 FLD. 6/16

•DENTAL PERSONNEL
OFFICER PERSONNEL
OPERATION DEEP FREEZE SIX '61: DENTAL OFFICER'S REPORT.
AD-629 780 FLD. 5/9

•DEPARTMENT OF DEFENSES
SPACE COMMUNICATION SYSTEMS
ANALYSIS TO DETERMINE IF THE DEPARTMENT OF DEFENSESHOULD OWN OR LEASE COMMUNICATIONS SATELLITES.
AD-629 678 FLD. 17/2.1

•DESOXYRIBONUCLEIC ACIDS
BACTERIOPHAGES
GENETIC ANALYSIS OF MICROORGANISM BY MIXED INFECTIONOF ACTIVE PHAGE PARTICLES AND PHAGE OR BACTERIAL DNA.
AD-629 749 FLD. 6/13

EQUILIBRIUM
DENATURATION AND RENATURATION OF DNA: EQUILIBRIUMSTATISTICS OF COPOLYMERIC DNA.
AD-629 991 FLD. 6/1

•DETONATIONS
SHOCK(MECHANICS)
SHOCK INITIATION OF LOW-DENSITY PRESSINGS OF AMMONIUMPERCHLORATE.
AD-629 537 FLD. 19/1

•DEUTERIUM
EXCHANGE REACTIONS
MECHANISM OF THE TRITIUM BETA-RAY INDUCED EXCHANGEREACTIONS OF DEUTERIUM WITH METHANE AND ETHANE IN THEGAS PHASE.

AD-629 697 FLD. 8/1

•DIELECTRIC FILMS
REFRACTIVE INDEX
REPRINT: ERROR IN DIELECTRIC-FILM ELLIPSOMETER DETERMINATIONS DUE TO NEGLECT OF FILM ABSORPTION.
AD-629 341 FLD. 20/6

•DIELECTRIC PROPERTIES
LIQUIDS
DIELECTRIC PROPERTIES AND THE STRUCTURE OF MATTER.
AD-629 439 FLD. 7/4

•DIELECTRICS
ANTENNAS
STUDY OF SPECIAL BEAMSHAPING ANTENNAS.
AD-629 603 FLD. 9/5

SPECTRA(INFRARED)
TEMPERATURE DEPENDENCE OF THE INFRARED SPECTRA OFSELECTED DIELECTRICS.
AD-629 896 FLD. 11/7

•DIET
ENTEROBACTERIACEAE
INFLUENCE OF DIET ON THE NORMAL FECAL FLORA OF THE CHIMPANZEE.
AD-629 612 FLD. 6/3

•DIFFERENTIAL EQUATIONS
BOUNDARY VALUE PROBLEMS
COMMENTS ON DIFFERENTIABILITY OF SOLUTIONS OF BOUNDARYVALUE PROBLEMS.
AD-629 299 FLD. 12/1

•DIGITAL COMPUTERS
COMPUTER LOGIC
REPRINT: MAPPINGS FOR MODULAR ARITHMETIC.
AD-629 489 FLD. 9/2

•DIODES(SEMICONDUCTOR)
RECTIFIERS
PRODUCTION ENGINEERING MEASURE. HIGH VOLTAGE SILICONRECTIFIER STACKS.
AD-629 583 FLD. 9/1

SILICON
PRODUCT ENGINEERING MEASURE FOR THE IMPROVEMENT OFPRODUCTION TECHNIQUES TO INCREASE THE RELIABILITY AND TOIMPROVE PRODUCT CAPABILITY OF HIGH VOLTAGE MINIATURESILICON RECTIFIERS.
AD-629 898 FLD. 9/1

THERMOELECTRICITY
INVESTIGATION OF GERMANIUM DIODES FOR THERMO-PHOTOVOLTAICENERGY CONVERTORS.
AD-629 313 FLD. 10/1

•DIRECT FINDING
ANTENNAS
RESEARCH ON NEW TYPES OF ANTENNA SYSTEMS FOR THE FREQUENCYRANGE 30-1000 MC.
AD-629 478 FLD. 9/5

•DISARMAMENT
UNITED NATIONS
UNITED NATIONS DISARMAMENT NEGOTIATIONS, 1953-1957.
AD-629 666 FLD. 5/4

•DISTRIBUTION FUNCTIONS
FLUIDS
REPRINT: RADIAL DISTRIBUTION FUNCTIONS FOR MIXTURES OF HARDSPHERES.
AD-629 328 FLD. 20/4

STATISTICAL PROCESSES
ERGODICITY OF THE DISTRIBUTION FUNCTION OF A STATIONERYPROCESS.
AD-629 307 FLD. 12/1

•DOCUMENTATION
PROGRAMMING(COMPUTERS)
DOCUMENTATION FOR COMPUTER PROGRAMMING: STANDARDS ANDSPECIFICATIONS.
AD-629 521 FLD. 9/2

UNITED STATES GOVERNMENT
RECOMMENDATIONS FOR NATIONAL DOCUMENT HANDLINGSYSTEMS IN SCIENCE AND TECHNOLOGY.
AD-629 560 FLD. 5/2

•DOPPLER SYSTEMS
TRACKING
DOPPLER RESIDUALS: DEPENDENCE ON SATELLITE ORBIT ERRORAND STATION POSITION ERROR.
AD-629 476 FLD. 22/3

•DRAG
GUIDED MISSILES(SURFACE-TOSURFACE)
SIMPLIFIED METHOD OF PRELIMINARY DESIGN DRAG ESTIMATESFOR BALLISTIC MISSILES.
AD-629 321 FLD. 16/2

•DRAWING(MACHINE PROCESSING)
METALS
INVESTIGATION OF THE NATURE OF STRUCTURAL DAMAGE IN METALFORMING PROCESSES.
AD-629 297 FLD. 13/8

•DYNAMICS
CANTILEVER BEAMS
CHARACTERISTIC DYNAMIC STRENGTH RATIO AS THE LIMITINGPARAMETER IN SHOCK DESIGN.
AD-629 938 FLD. 13/13

•EARPHONES
DEAFNESS
TRANSLATION OF YUGOSLAVIAN RESEARCH: SUVAG AND SUVAGLINGUA SPEECH ANALYSERS.
AD-629 890 FLD. 6/12

•ECOLOGY
CRUSTACEA
REPRINT: AN ASPECT OF EUPHAUSIID ECOLOGY REVEALED BYECHO-SOUNDING IN A FJORD.
AD-629 920 FLD. 8

•ECONOMICS
INDIA
INDIAN ECONOMY AND DEFENSE.
AD-629 775 FLD. 5/3

SIMULTANEOUS EQUATIONS
NONLINEAR SIMULTANEOUS EQUATIONS: ESTIMATION ANDPREDICTION.
AD-629 259 FLD. 5/3

TRANSPORTATION
TRANSPORTATION FORECAST AND PREDICTION STUDY.
AD-629 285 FLD. 15/5

USSR
SOVIET TRANSPORT AND COMMUNICATIONS: OUTPUT INDEXES,1928-1962.
AD-629 818 FLD. 5/3

•ELASTIC SCATTERING
ELECTRONS
CHARGE DISTRIBUTIONS OF CA40 AND CA44 FROM 250 MEVELECTRON SCATTERING.
AD-629 272 FLD. 20/8

•ELASTICITY
BOUNDARY VALUE PROBLEMS
INTERIOR ELASTIC STRESS FIELD IN A CONTINUOUS, CLOSEPACKED FILAMENTARY COMPOSITE MATERIAL UNDER UNAXIALTENSION.
AD-629 572 FLD. 11/4

PRESSURE
EFFECTS OF FORCE UPON ANIMALS AND HUMAN BEINGS: THE EFFECTSOF ELASTICITY UPON THE PRESSURES WITHIN A LIQUID FILLED TUBEWHEN SUBJECTED TO FLUCTUATING FORCES.
AD-629 414 FLD. 6/19

•ELASTOMERS
HEAT-RESISTANT MATERIALS
SIB POLYMER DEVELOPMENT.
AD-629 549 FLD. 11/10

•ELECTRIC DISCHARGES
RADIOFREQUENCY
RADIOFREQUENCY DISCHARGES.
AD-629 455 FLD. 19/1

•ELECTRIC EQUIPMENT
CLEANING
SURFACE CHEMICAL METHODS OF DISPLACING WATER AND/OROILS AND SALVAGING FLOODED EQUIPMENT. PART V. FIELDEXPERIENCE IN REMOVING SEA-WATER SALT RESIDUES, SAND,DUST, AND SOLUBLE CORROSIVE PRODUCTS FROM AN/FPS-16(XN-1)MISSILE- AND SATELLITE-TRACKING RADAR.
AD-629 293 FLD. 13/8

•ELECTRIC FIELDS
PLASMA PHYSICS
ELECTROHYDRODYNAMIC FLOW OVER A WAVY WALL.
AD-629 906 FLD. 20/9

•ELECTRIC POWER PRODUCTION
SPACE STATIONS
ELECTRICAL POWER SYSTEMS FOR THE MANNED ORBITING LABORATORY.
AD-629 668 FLD. 22/2

•ELECTRICAL CONDUCTANCE
HEAT OF ACTIVATION
ARRHENIUS ACTIVATION ENERGY OF ELECTRICAL CONDUCTANCE OFLIGHT AND HEAVY WATER.
AD-629 292 FLD. 7/4

•ELECTRICAL NETWORKS
PASSIVE
DISTRIBUTIONAL STUDY OF THE REAL FREQUENCY BEHAVIOR OFPASSIVE SYSTEMS.
AD-629 771 FLD. 9/5

•ELECTROCARDIOGRAPHY
FISHES
METHOD OF MONITORING THE CARDIAC BEHAVIOR OFPHOLIS GUNNELLUS (LINNAEUS).
AD-629 649 FLD. 6/3

MONKEYS
EFFECTS OF ENVIRONMENTAL TEMPERATURE CHANGES ON THE EKGOF THE SQUIRREL MONKEY (SAIMIRI SCIUREUS).
AD-629 527 FLD. 6/6

•ELECTRODEPOSITION
FILMS
ELECTRODEPOSITED MAGNETIC FILM DEVELOPMENT.
AD-629 930 FLD. 9/1

•ELECTRODES
FILMS
KINETICS AND MECHANISM OF ELECTROLYTIC FILM FORMATIONREACTIONS.
AD-629 269 FLD. 7/4

MICROMINIATURIZATION(ELECTRONICS)
REPRINT: GLASS-COATED TUNGSTEN MICROELECTRODES.
AD-629 393 FLD. 9/1

•ELECTROLYSIS
REACTION KINETICS
KINETICS AND MECHANISM OF ELECTROLYTIC FILM FORMATIONREACTIONS.
AD-629 269 FLD. 7/4

•ELECTROLYTES
HYDROSTATIC PRESSURE
EFFECT OF SODIUM CHLORIDE ADDITION ON THE VISCOSITY OFWATER UNDER PRESSURE.
AD-629 291 FLD. 7/4

•ELECTROLYTES(PHYSIOLOGY)
EXCRETION
IONIC FACTORS IN TOXIC ACTION.
AD-629 592 FLD. 6/19

LEARNING
EFFECTS OF CHEMICAL STIMULATION AND LEARNING ON NUCLEICACIDS AND PROTEINS.
AD-629 709 FLD. 5/10

•ELECTROMAGNETIC SHIELDING
EFFECTIVENESS
ELECTROMAGNETIC SHIELDING EFFECTIVENESS MEASUREMENTSUSING LOW CONDUCTIVITY CLOSED SURFACES.
AD-629 708 FLD. 9/1

EXPLOSIVES INITIATORS
RADIOFREQUENCY DISCHARGES.
AD-629 495 FLD. 19/1

PERMEABILITY(MAGNETIC)
INTRODUCTORY THEORETICAL STUDY OF CONSTANT PERMEABILITYMAGNETIC SHIELDING.
AD-629 312 FLD. 20/3

•ELECTROMAGNETIC WAVE REFLECTIONS
IONOSPHERE
LOWEST ELECTRON DENSITY NECESSARY FOR WAVE REFLECTION FROMTHE IONOSPHERIC D-LAYER.
AD-629 462 FLD. 4/1

•ELECTROMAGNETIC WAVES
PROPAGATION
SURFACE WAVES ON ANISOTROPIC SURFACES.
AD-629 602 FLD. 20/14
GUIDING, SCATTERING, AND RADIATION OF ELECTROMAGNETICWAVES.
AD-629 849 FLD. 20/14

SCATTERING
SOURCE DISTRIBUTION TECHNIQUE FOR THE SOLUTION OF GENERALELECTROMAGNETIC SCATTERING PROBLEMS. PHASE I REPORT.
AD-629 986 FLD. 17/9
REPRINT: SCATTERING OF SHORT PULSES OF ELECTROMAGNETICWAVES.
AD-629 732 FLD. 20/14

•ELECTROMAGNETS
PLASMA PHYSICS
RESEARCH IN HIGH TEMPERATURE PLASMAS FOR SPACE APPLICATIONS.VOLUME II. ENGINEERING.
AD-629 986 FLD. 20/9

•ELECTRON BOMBARDMENT
EXCITATION
REPRINT: EXCITATION OF NEUTRAL ATOMS BY ELECTRON IMPACT.
AD-629 278 FLD. 20/8

IONIZATION
REPRINT: IONIZATION OF INERT GAS ATOMS BY ELECTRON ANDPROTON IMPACT AT HIGH ENERGIES.
AD-629 277 FLD. 20/8

•ELECTRON DENSITY
ELECTROMAGNETIC WAVE REFLECTIONS
LOWEST ELECTRON DENSITY NECESSARY FOR WAVE REFLECTION FROMTHE IONOSPHERIC D-LAYER.
AD-629 462 FLD. 4/1

•ELECTRON MULTIPLIERS
ELECTRON TUBES
EVALUATION OF ELECTRON MULTIPLIER TUBE AND CIRCUITRY.
AD-629 588 FLD. 9/1

•ELECTRON TUBES
SECONDARY EMISSION
EVALUATION OF ELECTRON MULTIPLIER TUBE AND CIRCUITRY.
AD-629 588 FLD. 9/1

•ELECTRONIC EQUIPMENT
CLEANING
SURFACE CHEMICAL METHODS OF DISPLACING WATER AND/OROILS AND SALVAGING FLOODED EQUIPMENT. PART V. FIELDEXPERIENCE IN REMOVING SEA-WATER SALT RESIDUES, SAND,DUST, AND SOLUBLE CORROSIVE PRODUCTS FROM AN/FPS-16(XN-1)MISSILE- AND SATELLITE-TRACKING RADAR.
AD-629 293 FLD. 13/8

RADIATION DAMAGE
HYBRID COMPUTATION OF TRANSIENT RADIATION EFFECTS ONELECTRONICS.
AD-629 559 FLD. 18/8

•ELECTRONIC SCANNERS
FERROMAGNETIC MATERIALS
ELECTRONICALLY STEERABLE ARRAY: CHANGE A.
AD-629 791 FLD. 9/5

•ELECTRONIC TECHNICIANS
NAVAL TRAINING
INVESTIGATION OF THE UTILITY OF A CONVERSION CHART AS A JOBAID FOR ELECTRONICS TECHNICIANS.
AD-629 608 FLD. 5/9

•ELECTRONICS
SCIENTIFIC RESEARCH
JOINT SERVICES ELECTRONICS PROGRAM.
AD-629 297 FLD. 9/1

•ELECTRONS
MUONS
REPRINT: BROKEN SYMMETRIES AND THE ELECTRON-MUONPROBLEM.
AD-629 400 FLD. 20/8

•ELECTROOPTICS
ABSORPTION SPECTRUM
ELECTROOPTICS: EXCITED STATE SATURABLE ABSORBER FOR1.06 MICRON WAVELENGTH.
AD-629 361 FLD. 20/6

•ELECTROPHOTOGRAPHY
COLOR PHOTOGRAPHY
EVALUATION AND TEST OF A FIVE-COLOR ELECTROSTATICPRINTING MACHINE FOR THE REPRODUCTION OF TOPOGRAPHICMAPS AND CHARTS.
AD-629 839 FLD. 14/5

•ELECTROPHYSIOLOGY
MUSCLES
MECHANISMS OF SMOOTH MUSCLE RELAXATION THROUGH THE ANODALCURRENT STIMULATION.
AD-629 739 FLD. 6/16

•ELEMENTARY PARTICLES
N-BODY PROBLEM
METHODS COMMON TO ELEMENTARY PARTICLE PHYSICS ANDMANY-BODY PROBLEMS.
AD-629 396 FLD. 20/8

•ENERGY CONVERSION
ELECTROCHEMISTRY
CHEMOELECTRIC ENERGY CONVERSION FOR NONAQUEOUS RESERVEBATTERIES.
AD-629 811 FLD. 10/3

•ENGINEERING PERSONNEL
SELECTION
ANALYSIS OF THE SELECTION OF CANDIDATES FOR SALESENGINEERING POSITIONS.
AD-629 695 FLD. 5/9

•ENTEROBACTERIACEAE
CHIMPANZEES
INFLUENCE OF DIET ON THE NORMAL FECAL FLORA OF THE CHIMPANZEE.
AD-629 612 FLD. 6/3

•ENZYMES
FOOD
TRANSLATION OF RUSSIAN RESEARCH: CONCERNING THEHYGIENIC STUDY OF ENZYME PREPARATIONS PRODUCED BYMICROFUNGI AND THEIR POSSIBLE USE IN THE FOOD INDUSTRY.
AD-629 589 FLD. 6/8

•EPIDEMIOLOGY
SOUTH KOREA
REPRINT: KOREAN HEMORRHAGIC FEVER.
AD-629 247 FLD. 6/5

•EQUATIONS OF MOTION
STABILITY
TRANSLATION OF RUSSIAN RESEARCH: LYAPUNOV'S METHODOF INVESTIGATING THE STABILITY OF MOTION OF RIGID BODIESWITH LIQUID-FILLED CAVITIES.
AD-629 800 FLD. 20/11

•EQUATIONS OF STATE
SOLIDS
MEASUREMENT OF THE GRUENEISEN PARAMETER AND THE INTERNALENERGY DEPENDENCE OF THE SOLID EQUATION OF STATE FORALUMINUM AND TEFLON.
AD-629 320 FLD. 20/13

•EQUILIBRIUM
DESOXYRIBONUCLEIC ACIDS
DENATURATION AND RENATURATION OF DNA: EQUILIBRIUMSTATISTICS OF COPOLYMERIC DNA.
AD-629 491 FLD. 6/1

•ESTERS
CHEMICAL PROPERTIES
REPRINT: ASPECTS OF THE CHEMISTRY OF PERESTERS.
AD-629 916 FLD. 7/3

GAS CHROMATOGRAPHY
APPLICATION OF GAS CHROMATOGRAPHY TO ANALYSES OF ARMYWEAPONS MATERIALS: ANALYSIS OF FATTY ACIDS.
AD-629 819 FLD. 7/3

•EUTECTICS
MICROSTRUCTURE
STUDY OF THE EFFECT OF SOLIDIFICATION STRUCTURES ON THESTRENGTH OF METALS.
AD-629 772 FLD. 11/6

•EVACUATION
REFUGEES
DISPLACEMENT OF PEOPLE: SOCIAL AND PSYCHOLOGICAL PROBLEMS.
AD-629 519 FLD. 5/11

•EXCHANGE REACTIONS
REACTION KINETICS
MECHANISM OF THE TRITIUM BETA-RAY INDUCED EXCHANGEREACTIONS OF DEUTERIUM WITH METHANE AND ETHANE IN THEGAS PHASE.
AD-629 697 FLD. 8/1

TRACER STUDIES
REPRINT: PROTON-DEUTERON EXCHANGE OF THE RADICAL ININRRADIATED SINGLE CRYSTALS OF DL-

ASPARTIC ACID: EFFECTOF THE CRYSTAL FIELD ON THE CHAMICAL REACTION.
AD-629 385 FLD. 8/1

•EXCITATION
ATOMS
REPRINT: EXCITATION OF NEUTRAL ATOMS BY ELECTRON IMPACT.
AD-629 278 FLD. 20/8

NITROGEN
NUCLEAR EXCITATIONS IN B10, B11, AND N14 BY INELASTICELECTRON SCATTERING AT 180 DEG.
AD-629 270 FLD. 20/8

PLASMA MEDIUM
LINE-REVERSAL MEASUREMENTS OF EXCITATION AND ELECTRONTEMPERATURE IN A SHOCK TUBE.
AD-629 714 FLD. 7/4

•EXHAUST FLAMES
GAS IONIZATION
RADAR INTERFERENCE EFFECTS IN THE LEM DESCENT ENGINEEXHAUST PLUME. CHEMI-IONIZATION IN THE LEM PROPELLANTSYSTEM. PREDICTION OF REFRACTION AND ATTENUATION OF THE LEMRADAR BEAMS.
AD-629 581 FLD. 22/1

•EXPLOSIVE ACTUATORS
DESIGN
QUALIFICATION OF THRUSTER, CARTRIDGE ACTUATED, XM25.
AD-629 425 FLD. 19/1

•EXPLOSIVE MATERIALS
AMMONIUM COMPOUNDS
SHOCK INITIATION OF LOW-DENSITY PRESSINGS OF AMMONIUMPERCHLORATE.
AD-629 537 FLD. 19/1

STATE-OF-THE ART REVIEWS
TRANSLATION OF RUSSIAN RESEARCH: HIGH EXPLOSIVES,FUZES, AND FUZING MECHANISMS. PART A. CHEMISTRY OFHIGH EXPLOSIVES.
AD-629 687 FLD. 19/1

•EYE
NEOPLASMS
REPRINT: TERATOMA OF THE ORBIT: A REPORT OF TWO CASES.
AD-629 408 FLD. 6/5
REPRINT: INCORPORATION OF TRITIATED THYMIDINE BY OCULARTUMORS IN VITRO.
AD-629 419 FLD. 6/5

PROSTHETICS
REPRINT: PRINCIPLES OF POLYMER IMPLANT APPLICATIONS.
AD-629 621 FLD. 6/5

WOUNDS + INJURIES
REPRINT: BARIUM SULPHATE AND ZINC SULFIDE DEPOSITS RESULTINGFROM GOLF-BALL INJURY TO THE CONJUNCTIVA AND EYELID.
AD-629 805 FLD. 6/5

•FACSIMILE EQUIPMENT
FIBER OPTICS
CONTINUOUS FACSIMILE SCANNER EMPLOYING FIBER OPTICS.
AD-629 696 FLD. 17/2

•FALLOUT SHELTERS
CIVIL DEFENSE SYSTEMS
A SENSITIVITY ANALYSIS OF SELECTED PARAMETERS BASED ON8 SMSA'S.
AD-629 702 FLD. 15/3
SENSITIVITY ANALYSIS OF CIVIL DEFENSE SYSTEMS AND COMPONENTS. INTRODUCTION AND SUMMARY.
AD-629 709 FLD. 15/3

COST EFFECTIVENESS
SENSITIVITY ANALYSIS OF CIVIL DEFENSE SYSTEMS AND COMPONENTS. A COST-EFFECTIVENESS COMPUTER PROCEDURE FOROPTIMUM ALLOCATION OF FALLOUT SHELTER SYSTEM FUND UNDERUNIFORM OR VARIABLE RISK ASSUMPTIONS.
AD-629 701 FLD. 15/3

DESIGN
MAGNITUDE AND DISTRIBUTION OF WEAPON EFFECTS; APPLICATIONTO DESIGN OF FALLOUT SHELTERS.
AD-629 370 FLD. 13/13

•FATIGUE(PHYSIOLOGY)
UNDERWATER SOUND
AUDITORY FATIGUE UNDERWATER AT 1900 CYCLES PER SECOND.
AD-629 753 FLD. 6/19

•FATTY ACIDS
GAS CHROMATOGRAPHY
APPLICATION OF GAS CHROMATOGRAPHY TO ANALYSES OF ARMYWEAPONS MATERIALS: ANALYSIS OF FATTY ACIDS.
AD-629 819 FLD. 7/3

•FERMIONS
QUANTUM MECHANICS
REPRINT: QUANTUM ELECTRODYNAMICS WITH ZERO BAREFERMION MASS.
AD-629 398 FLD. 20/8

•FERROCENES
BOROHYDRIDES

AD-629 390 FLD. 7/2

MOLECULAR PROPERTIES
REPRINT: RESONANCE STABILIZATION OF ALPHA-FERROCENYLCARBONIUM IONS.
AD-629 364 FLD. 7/3

•FERROMAGNETISM
SPIN
THERMODYNAMIC PROPERTIES OF SPIN IMPURITIES INHEISENBERG FERROMAGNETS.
AD-629 721 FLD. 20/3

•FIBER OPTICS
FACSIMILE EQUIPMENT
CONTINUOUS FACSIMILE SCANNER EMPLOYING FIBER OPTICS.
AD-629 696 FLD. 17/2

•FIELD THEORY
CHARGED PARTICLES
REPRINT: LENGTH SCALE IN QUANTUM ELECTRODYNAMICS WITHOUTA BARE MASS.
AD-629 399 FLD. 20/8

ELECTRONS
REPRINT: BROKEN SYMMETRIES AND THE ELECTRON-MUONPROBLEM.
AD-629 400 FLD. 20/8

FERMIONS
REPRINT: QUANTUM ELECTRODYNAMICS WITH ZERO BAREFERMION MASS.
AD-629 398 FLD. 20/8

FERROMAGNETIC MATERIALS
TEMPERATURE DEPENDENCE OF MAGNETOCRYSTALLINEANISOTROPY, AND THE L(L1)/2 POWER LAW.
AD-629 718 FLD. 20/3

TRANSFORMATIONS(MATHEMATICS)
REPRINT: GENERALIZATION OF THE LANDAU GAUGE.
AD-629 397 FLD. 20/8

•FILAMENTS
COMPOSITE MATERIALS
INTERIOR ELASTIC STRESS FIELD IN A CONTINUOUS, CLOSEPACKED FILAMENTARY COMPOSITE MATERIAL UNDER UNAXIALTENSION.
AD-629 972 FLD. 11/4

•FILMS
ELECTROLYSIS
KINETICS AND MECHANISM OF ELECTROLYTIC FILM FORMATIONREACTIONS.
AD-629 269 FLD. 7/4

MAGNETIC MATERIALS
ELECTRODEPOSITED MAGNETIC FILM DEVELOPMENT.
AD-629 930 FLD. 9/1

MOLECULAR PROPERTIES
REPRINT: DOUBLE LAYER REPULSION AND VAN DER WAALSATTRACTION IN SOAP FILMS.
AD-629 280 FLD. 7/4

THERMISTORS
THIN FILM THERMISTORS.
AD-629 965 FLD. 9/1

THICKNESS
REPRINT: OPTICAL INTERFERENCE IN CURVED SOAP FILMS.
AD-629 409 FLD. 7/4

•FINS
GEOMETRIC FORMS
EFFECT OF GEOMETRY ON LOCAL CONVECTIVE COEFFICIENTS FORAN UNBAFFLED CIRCULAR FIN ASSEMBLY.
AD-629 646 FLD. 20/13

•FIRE SAFETY
CENTRIFUGES
STUDY OF THE USAF SCHOOL OF AEROSPACE MEDICINE HUMANCENTRIFUGE.
AD-629 946 FLD. 14/2

•FISHES
ELECTROCARDIOGRAPHY
METHOD OF MONITORING THE CARDIAC BEHAVIOR OFPHOLIS GUNNELLUS (LINNAEUS).
AD-629 699 FLD. 6/3

•FIXED RESISTORS
MANUFACTURING METHODS
PRODUCTION ENGINEERING MEASURES FOR HIGH RELIABILITY,FIXED, FILM, PRECISION RESISTORS.
AD-629 936 FLD. 9/1

•FLIGHT SIMULATORS
LOW ALTITUDE
GEOGRAPHIC ORIENTATION IN AIRCRAFT PILOTS; METHODOLOGICALADVANCEMENT.
AD-629 616 FLD. 1/2

•FLOWMETERS
BLOOD CIRCULATION
REPRINT: CALIBRATION OF ELECTROMAGNETIC FLOWMETERS FORBLOOD FLOW MEASUREMENT.
AD-629 622 FLD. 6/12

•FLUID AMPLIFIERS
PERFORMANCE(ENGINEERING)
APPLICATION OF OPTICAL FABRICATION TECHNIQUES TO THEFABRICATION AND DEVELOPMENT OF FLUID AMPLIFIERS ANDFLUID CIRCUITS.
AD-629 773 FLD. 13/7

•FLUID FLOW
COLLOIDS
REPRINT: PARTICLE MOTIONS IN SHEARED SUSPENSIONS.ORIENTATIONS OF RODS AND DISKS IN HYPERBOLIC AND OTHERFLOWS.
AD-629 243 FLD. 7/4

•FLUID MECHANICS
USSR
TRANSLATION OF RUSSIAN RESEARCH: MIXING OF CONCENTRICHIGH-VELOCITY AIRSTREAMS.
AD-629 809 FLD. 20/4

•FLUIDS
SPHERES
REPRINT: NUMERICAL SOLUTIONS OF THE PERCUS-YEVICKEQUATION FOR THE HARD-SPHERE POTENTIAL.
AD-629 327 FLD. 20/4
REPRINT: RADIAL DISTRIBUTION FUNCTIONS FOR MIXTURES OF HARDSPHERES.
AD-629 328 FLD. 20/4

•FLUORIDES
CHEMICAL REACTIONS
REPRINT: INFRARED EVIDENCE FOR DIMER FORMATIONOF SULFUR TETRAFLUORIDE AND OF THIONYL FLUORIDE ATLOW TEMPERATURES.
AD-629 902 FLD. 7/2

DOPING
FEASIBILITY STUDY TO INCREASE THE ACTIVITY OF OXIDES WITHOXYGEN AND TO LOWER THE IGNITION TEMPERATURE OF SLURRYMETALS.
AD-629 590 FLD. 21/9.2

ELECTROPHORESIS
EFFECT OF CONTROLLED ELECTROPHORESIS ON DEPOSITION OFFLUORIDE ON TOOTH STRUCTURE.
AD-629 680 FLD. 6/5

MAGNETO-OPTIC EFFECT
ZEEMAN SPLITTING OF NARROW LINES IN CRYSTALLINE MNF2,FEF2, AND COF2. EVIDENCE FOR SPIN-WAVE EXCITATIONS.
AD-629 803 FLD. 7/4

RARE EARTH COMPOUNDS
REPRINT: PREPARATION AND PARAMAGNETISM OF THE RARE EARTHTRIFLUORIDES.
AD-629 722 FLD. 7/2

•FLUORINE COMPOUNDS
ORGANIC COMPOUNDS
ORGANIC FLUORINE COMPOUNDS: SURFACE PROPERTIES.
AD-629 610 FLD. 7/4

•FOILS
GAS BEARINGS
STIFFNESS EFFECTS ON THE INFINITELY WIDE FOIL BEARING.
AD-629 827 FLD. 13/9

•FOOD
PRESERVATION
TRANSLATION OF RUSSIAN RESEARCH: METHODS FOR CALCULATINGCANNING PRODUCTION COSTS: ACCELERATED METHOD FORDETERMINING MOISTURE IN DRIED VEGETABLES: STUDYING THEUSE OF SORBIC ACID IN CANNING FRUIT AND VEGETABLES ANDRECONSTITUTION OF VEGETABLES DRIED BY SUBLIMATION.
AD-629 571 FLD. 6/8

•FORCE(MECHANICS)
MAGNETIC FIELDS
REPRINT: LORENTZ FORCE.
AD-629 723 FLD. 20/3

•FOREIGN AID
UNITED STATES GOVERNMENT
COMMENTS ON THE FOREIGN AID POLICIES OF THE UNITEDSTATES.
AD-629 460 FLD. 5/4

•FOREIGN POLICY
OPERATIONS RESEARCH
MATHEMATICAL DECISION MAKING APPROACH TO THE CONTROLOF INTERNATIONAL CONFLICT.
AD-629 690 FLD. 5/4

•FORESTRY
USSR
TRANSLATION OF RUSSIAN RESEARCH: SIBERIAN CEDAR ON PINEROOTSTOCK.
AD-629 570 FLD. 2/6

•FOURIER ANALYSIS
SERIES
EXPANSION OF A NON-PERIODIC PROCESS X(T) INTO A FOURIERSERIES WITH UNCORRELATED COEFFICIENTS.
AD-629 266 FLD. 12/1

•FRACTURE(MECHANICS)
ALLOYS
TRANSLATION OF RUSSIAN RESEARCH: ON THE RATE OF SPREADINGOF FATIGUE CRACKS.
AD-629 758 FLD. 20/11

•FREQUENCY MULTIPLIERS
MANUFACTURING METHODS
DEVELOPMENT OF A HIGH POWERED ELECTRON MULTIPLIER TUBE.
AD-629 538 FLD. 9/1

SEMICONDUCTOR DEVICES
DEVELOPMENT OF TRANSISTOR-VARACTOR DIODE CAPABLE OF 5WATTS OUTPUT AT 2.3 GIGACYCLES.
AD-629 566 FLD. 9/1

•FRICTION
HEAT-RESISTANT MATERIALS
TRANSLATION OF RUSSIAN RESEARCH: PECULIARITIES OF CREATIONOF HEAT-RESISTANT FRICTIONAL MATERIALS.
AD-629 760 FLD. 11/4

•FUEL CONSUMPTION
OPTIMIZATION
MINIMUM FUEL ANALYSIS OF A LUNAR SOFT LANDING MISSIONUSING FEEDBACK CONTROL.
AD-629 681 FLD. 22/3

•FUEL OIL
DIESEL ENGINES
CALCULATION OF ENGINE PERFORMANCE USING AMMONIA FUEL.DIESEL CYCLE.
AD-629 965 FLD. 21/4

•FUEL PUMPS
DESIGN
HEAVY-LIFT TURBOJET ROTOR SYSTEM. FUEL PUMP AND CONTROLSYSTEM DESIGN.
AD-629 822 FLD. 1/3

•FUNCTIONS
APPROXIMATION(MATHEMATICS)
IMPROVING AN APPROXIMATE SOLUTION OF A FUNCTIONAL EQUATIONBY DEFERRED CORRECTIONS.
AD-629 837 FLD. 12/1

GAME THEORY
REPRINT: UTILITY FUNCTIONS OF MONEY FOR CLEAR GAMES.
AD-629 672 FLD. 12/2

•FUNGI
ENZYMES
TRANSLATION OF RUSSIAN RESEARCH: CONCERNING THEHYGIENIC STUDY OF ENZYME PREPARATIONS PRODUCED BYMICROFUNGI AND THEIR POSSIBLE USE IN THE FOOD INDUSTRY.
AD-629 585 FLD. 6/8

•FURANS
SPECTRUM(INFRARED)
REPRINT: FAR-INFRARED SPECTRUM OF TETRAHYDROFURAN:SPECTROSCOPIC EVIDENCE FOR PSEUDOROTATION.
AD-629 492 FLD. 7/3

•FUZES(ORDNANCE)
PYROTECHNICS
APPLICATIONS OF PYROTECHNICS TO SMALL ARMS AMMUNITIONAND MILD DETONATING FUSE SYSTEMS.
AD-629 607 FLD. 19/1

•GALLIUM ALLOYS
ANTIMONY ALLOYS
HIGH-MOBILITY LOW-MELTING-POINT GROUP III-V COMPOUNDSEMICONDUCTORS.
AD-629 562 FLD. 20/12

•GALLIUM COMPOUNDS
HYDRIDES
REPRINT: HALOGEN DERIVATIVES OF CO-ORDINATED GALLIUMHYDRIDE.
AD-629 372 FLD. 7/2

NITRIDES
REPRINT: VAPORIZATION CATALYSIS. THE DECOMPOSITION OFGALLIUM NITRIDE.
AD-629 389 FLD. 7/4

•GAME THEORY
CONVEX SETS
NOTES ON N-PERSON GAMES. CORES OF CONVEX GAMES.
AD-629 310 FLD. 12/2

GROUP DYNAMICS
GROUP DECISION MAKING AND COMMUNICATION PATTERNS UNDERCONDITIONS OF STRESS AND OVERLOAD WHEN THE PARTICIPANTSARE PERMITTED TO FUNCTION AS A SELF-ORGANISING SYSTEM.
AD-629 597 FLD. 5/10

MONEY
REPRINT: UTILITY FUNCTIONS OF MONEY FOR CLEAR GAMES.
AD-629 672 FLD. 12/2

•GAMMA EMISSION
HELIUM
REPRINT: 0 DEGREE YIELD OF GAMMA RAYS IN THE T(P, GAMMA)4 HE REACTION.
AD-629 631 FLD. 20/8

NEUTRON REACTIONS
GAMMA RAYS FROM (N, N'GAMMA RAYS) INTERACTIONS OF2.8 MEV NEUTRONS WITH MAGNESIUM, ALUMINUM, SILICON,TITANIUM AND IRON.
AD-629 497 FLD. 20/8

•GAMMA-NEUTRON REACTIONS
METALS
GAMMA RAYS FROM (N, N'GAMMA RAYS) INTERACTIONS OF2.8 MEV NEUTRONS WITH MAGNESIUM, ALUMINUM, SILICON,TITANIUM AND IRON.
AD-629 497 FLD. 20/8

•GAMMA-RAY SPECTROSCOPY
CHEMICAL BONDS
REPRINT: MOSSBAUER STUDIES OF CHEMICAL BONDING.
AD-629 363 FLD. 8/1

•GARNET
ANISOTROPY
RARE-EARTH-IRON EXCHANGE INTERACTION IN THE GARNETS.II-EXCHANGE POTENTIAL FOR YTTERBIUM.
AD-629 719 FLD. 7/4

CRYSTALS
YAG CRYSTALS.
AD-629 596 FLD. 20/2

•GAS ANALYSIS
ACIDS
METHOD AND APPARATUS FOR THE DETERMINATION OF STRONGACID VAPORS IN THE PARTS/MILLION RANGE.
AD-629 296 FLD. 7/2

•GAS BEARINGS

AEROSTATICS
EXTERNALLY-PRESSURIZED GAS-LUBRICATED THRUST BEARINGSITRANSLATION OF AUSTRIAN RESEARCH.
AD-629 289 FLD. 13/9

BIBLIOGRAPHIES
BIBLIOGRAPHY (WITH ABSTRACTS) ON GAS-LUBRICATED BEARINGS.
AD-629 288 FLD. 13/9

FOILS
STIFFNESS EFFECTS ON THE INFINITELY WIDE FOIL BEARING.
AD-629 827 FLD. 13/9

•GAS CHROMATOGRAPHY
AMINO ACIDS
RESEARCH ON ANALYSIS OF AMINO ACIDS BY GAS CHROMATOGRAPHY.
AD-629 969 FLD. 6/1

FATTY ACIDS
APPLICATION OF GAS CHROMATOGRAPHY TO ANALYSES OF ARMYWEAPONS MATERIALS: ANALYSIS OF FATTY ACIDS.
AD-629 819 FLD. 7/3

•GAS DISCHARGES
HYPERSONIC FLOW
ELECTROFLUID HYPERSONIC RESEARCH.
AD-629 963 FLD. 20/9
ELECTROFLUID HYPERSONIC RESEARCH.
AD-629 964 FLD. 20/9

•GAS FLOW
AERODYNAMIC CHARACTERISTICS
MACH NUMBER TABLES (GAMMA = 1.4) WITH CORRECTION FACTORSFOR REAL AIR.
AD-629 998 FLD. 20/4

JET MIXING FLOW
TRANSLATION OF RUSSIAN RESEARCH: MIXING OF CONCENTRICHIGH-VELOCITY AIRSTREAMS.
AD-629 809 FLD. 20/4

PERTURBATION THEORY
ELECTROHYDRODYNAMIC FLOW OVER A WAVY WALL.
AD-629 906 FLD. 20/9

•GAS IONIZATION
RADAR INTERFERENCE
RADAR INTERFERENCE EFFECTS IN THE LEM DESCENT ENGINEEXHAUST PLUME. CHEMI-IONIZATION IN THE LEM PROPELLANTSYSTEM. PREDICTION OF REFRACTION AND ATTENUATION OF THE LEMRADAR BEAMS.
AD-629 981 FLD. 22/1

•GAS TURBINE NOZZLES
CONTROL
TRANSLATION OF RUSSIAN RESEARCH: CERTAIN RESULTS OFINVESTIGATION OF A CENTRIPETAL GAS TURBINE WITH NOZZLEADJUSTMENT.
AD-629 767 FLD. 21/5

•GAS TURBINE ROTORS
STRESSES
TRANSLATION OF RUSSIAN RESEARCH. COMPUTATION OFTEMPERATURE FIELDS AND STRESSES IN THE COOLED ROTOR OF AGAS TURBINE ON STARTING.
AD-629 852 FLD. 21/5

•GAS TURBINES
MECHANICAL ENGINEERING
TRANSLATION OF RUSSIAN RESEARCH: CERTAIN RESULTS OFINVESTIGATION OF A CENTRIPETAL GAS TURBINE WITH NOZZLEADJUSTMENT.
AD-629 767 FLD. 21/5

•GEARS
TORQUE
ANALYSIS OF FRICTION TORQUE IN SIMPLE AND PRELOADED SPURGEAR TRAINS.
AD-629 591 FLD. 13/9

•GELS
PREPARATION
REPRINT: HYDROGELS FROM 2-HYDROXYETHYL METHACRYLATEAND PROPYLENE GLYCOL MONOACRYLATE.
AD-629 480 FLD. 11/9

•GENETICS
INFECTIONS
REPRINT: SOME EFFECTS OF THE MOSQUITO HOST ON MALARIAPARASITES.
AD-629 248 FLD. 6/3

•GEODESICS
CALIFORNIA
OFFSHORE GRAVITY AND MAGNETIC ANOMALIES IN THESANTA BARBARA CHANNEL, CALIFORNIA.
AD-629 700 FLD. 8/4

SATELLITES(ARTIFICIAL)
NON-ZONAL HARMONIC COEFFICIENTS OF THE GEOPOTENTIAL FROMSATELLITE DOPPLER DATA.
AD-629 479 FLD. 8/4

•GEOLOGY
SCIENTIFIC RESEARCH
ATMOSPHERIC, EARTH AND OCEANOGRAPHIC RESEARCH.
AD-629 299 FLD. 4/1

•GEOPHYSICS
SPECIAL FUNCTIONS(MATHEMATICAL)
SPHERICAL HARMONICS IN GEODETIC PROBLEMS.
AD-629 479 FLD. 8/4

•GLASS
SHOCK RESISTANCE
RESISTANCE OF HOLLOW GLASS MODELS TO UNDERWATEREXPLOSIONS AT GREAT DEPTHS. SPECIAL CONFIGURATIONS.
AD-629 498 FLD. 19/4

•GLOBULINS
PERMEABILITY
REPRINT: USE OF HEPARIN IN DISTINGUISHING PLASMA KALLIKREINFROM PF/DIL.
AD-629 401 FLD. 6/5

•GLUCAGON
HYPERGLYCEMIA
REPRINT: EFFECT OF GLUCAGON ON BLOOD SUGAR AND INORGANICPHOSPHORUS LEVELS IN NORMOTHERMIC AND HYPOTHERMIC RATS.
AD-629 395 FLD. 6/16

•GOLD COMPOUNDS
COMPLEX COMPOUNDS
REPRINT: THE PREPARATION AND INFRARED EXAMINATION OF THE2-, 3-, AND 4-CYANOPYRIDINE COMPLEXES OF COPPER(I),SILVER(I), AND GOLD(I) PERCHLORATES.
AD-629 326 FLD. 7/2

•GRAIN STRUCTURES(METALLURGY)
FATIGUE(MECHANICS)
EFFECTS OF CYCLIC STRESSING ON PREFERRED ORIENTATION OFPOLYCRYSTALLINE ALUMINUM.
AD-629 651 FLD. 11/6

•GRAMMARS
LEARNING
REPRINT: INFERRING A GRAMMAR FROM RESPONSES:DISCUSSION OF GOUGH AND SEGAL'S COMMENT.
AD-629 295 FLD. 5/10

•GRAPHICS
ALGEBRAIC TOPOLOGY
SUBDIRECT DECOMPOSITIONS OF TRANSITION GRAPHS.
AD-629 577 FLD. 12/2

ELECTRICAL NETWORKS
REPRINT: CUT-SET MATRICES AND LINEAR CODES.
AD-629 380 FLD. 9/4

STATISTICAL TESTS
SHORT-CUT SOLUTION FOR THE KOLMOGOROV-SMIRNOV TEST.
AD-629 529 FLD. 12/1

•GRAVITY
GEOPHYSICS
SPHERICAL HARMONICS IN GEODETIC PROBLEMS.
AD-629 479 FLD. 8/4

PACIFIC OCEAN
OFFSHORE GRAVITY AND MAGNETIC ANOMALIES IN THESANTA BARBARA CHANNEL, CALIFORNIA.
AD-629 700 FLD. 8/4

•GROUP DYNAMICS
ADJUSTMENT(PSYCHOLOGY)
REPRINT: CLINICAL AND EXPERIMENTAL APPROACH TO THE ORIGINOF CONTRACTUAL NORMS UNDER DIFFERENT CONDITIONS OF CONFLICTAND THREAT.
AD-629 717 FLD. 5/10

PERFORMANCE(HUMAN)
REPRINT: GROUP PERFORMANCE AS A FUNCTION OF SIZE, STRUCTURE,AND TASK DIFFICULTY.
AD-629 322 FLD. 5/10

PROBLEM SOLVING
PERT INFLUENCED REFLECTIVE THINKING APPROACH TO PROBLEMSOLVING DISCUSSION.
AD-629 670 FLD. 5/10

•GUIDED MISSILE RANGES
INSTRUMENTATION
INSTRUMENT OPERATIONS ON THE FIRING RANGES AT NAVALORDNANCE TEST STATION.
AD-629 311 FLD. 14/2

OPERATIONS RESEARCH
SOME THOUGHTS ON RANGE PLANNING AND OPERATION.
AD-629 523 FLD. 22/4

•GUIDED MISSILES(SURFACE-TO-SURFACE)
DRAG
SIMPLIFIED METHOD OF PRELIMINARY DESIGN DRAG ESTIMATESFOR BALLISTIC MISSILES.
AD-629 321 FLD. 16/2

STATE-OF-THE-ART REVIEWS
LECTURE ON THE MINUTEMAN MISSILE SYSTEM.
AD-629 461 FLD. 16/4

•GYROSCOPES
OPTICAL EQUIPMENT
OPTICAL FLAT PLACEMENT ON ALMOST SPHERICAL GYROROTORS.
AD-629 661 FLD. 17/7

•HALL EFFECT
IRON ALLOYS
REPRINT: HALL EFFECTS, RESISTIVITY, AND THERMOPOWER IN FEAND FE(1-X)NI(X) FOR X=0 TO 0.2.
AD-629 381 FLD. 20/3

•HALOCARBON PLASTICS
EQUATIONS OF STATE
MEASUREMENT OF THE GRUENEISEN PARAMETER AND THE INTERNALENERGY DEPENDENCE OF THE SOLID EQUATION OF

STATE FORALUMINUM AND TEFLON.
AD-629 320 FLD. 20/13

•HALOGEN COMPOUNDS
COMPLEX COMPOUNDS
REPRINT: HALOGEN DERIVATIVES OF CO-ORDINATED GALLIUMHYDRIDE.
AD-629 372 FLD. 7/2

•HALOGENATED HYDROCARBONS
BROMIDES
REPRINT: NATURE OF THE CHEMICAL REACTIVITY OF RADIOBROMINEATOMS PRODUCED BY ISOMERIC TRANSITION.
AD-629 366 FLD. 8/1

•HARTREE-FOCK APPROXIMATION
NUCLEI
HARTREE-FOCK CALCULATIONS OF FINITE NUCLEI.
AD-629 319 FLD. 20/8

•HEALING
RETINA
RESPONSE OF A SIMULATED DETACHED RETINA TO VARIOUSDYNAMIC FORCES.
AD-629 662 FLD. 6/5

•HEAT FLUX
COOLANTS
TRANSLATION OF RUSSIAN RESEARCH: DETERMINATION OFCRITICAL HEAT FLOWS DURING THE BOILING OF A HIGH-BOILINGHEAT TRANSFER AGENT IN PIPES.
AD-629 801 FLD. 20/13

•HEAT OF ACTIVATION
ELECTRICAL CONDUCTANCE
ARRHENIUS ACTIVATION ENERGY OF ELECTRICAL CONDUCTANCE OFLIGHT AND HEAVY WATER.
AD-629 292 FLD. 7/4

•HEAT-RESISTANT GLASS
POROUS MATERIALS
INFRARED STUDY OF THE NATURE OF THE HYDROXYL GROUPS ON THESURFACE OF POROUS VYCOR GLASS.
AD-629 595 FLD. 7/4

•HEAT-RESISTANT MATERIALS
FRICTION
TRANSLATION OF RUSSIAN RESEARCH: PECULIARITIES OF CREATIONOF HEAT-RESISTANT FRICTIONAL MATERIALS.
AD-629 760 FLD. 11/9

•HEAVY WATER
ELECTRICAL CONDUCTANCE
ARRHENIUS ACTIVATION ENERGY OF ELECTRICAL CONDUCTANCE OFLIGHT AND HEAVY WATER.
AD-629 292 FLD. 7/4

•HELICOPTER ENGINES
DESIGN
HEAVY-LIFT TIP TURBOJET ROTOR SYSTEM. ENGINE DESIGN.
AD-629 716 FLD. 1/3

FUEL PUMPS
HEAVY-LIFT TURBOJET ROTOR SYSTEM. FUEL PUMP AND CONTROLSYSTEM DESIGN.
AD-629 822 FLD. 1/3

•HELICOPTER ROTORS
DESIGN
HEAVY-LIFT TIP TURBOJET ROTOR SYSTEM. ENGINE DESIGN.
AD-629 716 FLD. 1/3
HEAVY-LIFT TURBOJET ROTOR SYSTEM. DESIGN LAYOUT STUDIES.
AD-629 762 FLD. 1/3
HEAVY-LIFT TURBOJET ROTOR SYSTEM. STATIC AND DYNAMICLOADS.
AD-629 763 FLD. 1/3
HEAVY-LIFT TIP TURBOJET ROTOR SYSTEM. DYNAMIC ANDAEROELASTIC STUDIES.
AD-629 764 FLD. 1/3
HEAVY-LIFT TIP TURBOJET ROTOR SYSTEM. WEIGHT ANDBALANCE STUDIES.
AD-629 813 FLD. 1/3
HEAVY-LIFT TIP TURBOJET ROTOR SYSTEM. WIND-TUNNELSTUDIES.
AD-629 814 FLD. 1/3
HEAVY-LIFT TURBOJET ROTOR SYSTEM. FUEL PUMP AND CONTROLSYSTEM DESIGN.
AD-629 822 FLD. 1/3

•HELICOPTERS
WEIGHT
HEAVY-LIFT TIP TURBOJET ROTOR SYSTEM. WEIGHT ANDBALANCE STUDIES.
AD-629 813 FLD. 1/3

•HELIUM
LIQUID LEVEL GAGES
SIMPLE LEVEL INDICATOR FOR LIQUID HELIUM AT ALLTEMPERATURES.
AD-629 471 FLD. 14/2

•HEMOGLOBIN
MOLECULAR STRUCTURE
STUDIES ON THE HEMOGLOBIN-OXYGEN EQUILIBRIUM.
AD-629 740 FLD. 6/16

•HEMORRHAGE
DISEASES
REPRINT: KOREAN HEMORRHAGIC FEVER.
AD-629 247 FLD. 6/5

•HEMOSPORIDIA
DISEASES
REPRINT: SOME EFFECTS OF THE MOSQUITO HOST ON MALARIAPARASITES.
AD-629 248 FLD. 6/3

•HEPARIN
GLOBULINS
REPRINT: USE OF HEPARIN IN DISTINGUISHING PLASMA KALLIKREINFROM PF/DIL.
AD-629 401 FLD. 6/5

•HIGH FREQUENCY
RADIO COMMUNICATION SYSTEMS
MEASUREMENT OF IONOSPHERIC EFFECTS ON CURTS (COMMONUSER RADIO TRANSMISSION SOUNDING) SOUNDER/COMMUNICATIONS TERMINAL SEPARATIONS.
AD-629 253 FLD. 20/14

•HISTOLOGICAL TECHNIQUES
PHOSPHORIC MONOESTER HYDROLASES
REPRINT: DEMONSTRATION OF ALKALINE PHOSPHATASE IN GROSSSPECIMENS OF SMALL INTESTINE.
AD-629 351 FLD. 6/5

•HOMING TORPEDOES
KILL PROBABILITIES
REPRINT: PROBABILITY THAT AN ACOUSTIC HOMING TORPEDO WILLACQUIRE A SUBMARINE.
AD-629 677 FLD. 15/1

•HORIZON SCANNERS
THERMAL RADIATION
MOLECULAR ATMOSPHERIC OXYGEN HORIZON STUDY DATA EVALUATIONSTUDY REPORT.
AD-629 615 FLD. 22/2

•HORN ANTENNAS
TRACKING
SHF SEQUENTIAL LOBING SYSTEM.
AD-629 304 FLD. 9/5

•HOUSING
REFUGEES
DISPLACEMENT OF PEOPLE: SOCIAL AND PSYCHOLOGICAL PROBLEMS.
AD-629 519 FLD. 5/11

•HULLS(MARINE)
GEOMETRIC FORMS
MERIT COMPARISONS OF THE SERIES 64 HIGH-SPEEDDISPLACEMENT HULL FORMS.
AD-629 688 FLD. 13/10

•HUMANS
ACCELERATION TOLERANCE
HUMAN CENTRIFUGE.
AD-629 636 FLD. 14/2

•HYDRAZINE DERIVATIVES
PERCHLORATES
RESEARCH ON THE DEFLAGRATION OF HIGH-ENERGY SOLID OXIDIZERS.
AD-629 533 FLD. 21/9.2

•HYDROCARBONS
SYNTHESIS(CHEMISTRY)
REPRINT: POSITIVE-ION CHEMISTRY. HIGH YIELDS OFHEAVY HYDROCARBONS FROM SOLID METHANE BY IONIZINGRADIATION AND ITS IMPLICATIONS TO THE FORMATION OF METEORICAND PLANETARY MATTER.
AD-629 368 FLD. 8/1

•HYDROFOIL BOATS
HULLS(MARINE)
MERIT COMPARISONS OF THE SERIES 64 HIGH-SPEEDDISPLACEMENT HULL FORMS.
AD-629 688 FLD. 13/10

•HYDROFOILS
FLUID DYNAMIC PROPERTIES
EXPERIMENTAL STUDY OF HIGH SPEED HYDROFOILS.
AD-629 413 FLD. 13/10

•HYDROGRAPHIC SURVEYING
UNDERWATER SOUND EQUIPMENT
UNDERWATER ACOUSTIC RAY SHIP POSITIONING AND TRACKINGSYSTEM.
AD-629 454 FLD. 17/7

•HYDROLYSIS
ELECTROCHEMISTRY
REPRINT: STUDIES ON THE HYDROLYSIS OF THE YTTRIUM(III) ION.
AD-629 324 FLD. 7/2

•HYPERGLYCEMIA
BODY TEMPERATURE
REPRINT: EFFECT OF GLUCAGON ON BLOOD SUGAR AND INORGANICPHOSPHORUS LEVELS IN NORMOTHERMIC AND HYPOTHERMIC RATS.
AD-629 395 FLD. 6/16

•IMAGES
VISUAL PERCEPTION
TRANSLATION OF RUSSIAN RESEARCH: COMPILATION OFABSTRACTS ON OPTICAL DETECTION.
AD-629 439 FLD. 20/6

•IMPLANTS
PERMEABILITY
REPRINT: PERMEABILITIES OF POLYMERS AND THEIR MEDICALAPPLICATIONS: CORNEAL POLYMER IMPLANTS.
AD-629 503 FLD. 6/5

PLASTICS
REPRINT: GRAFT COPOLYMERIZATION OF VINYLPYRROLIDONE ONTOPOLYDIMETHYLSILOXANE.
AD-629 482 FLD. 11/9

POLYMERS
REPRINT: PRINCIPLES OF POLYMER IMPLANT APPLICATIONS.
AD-629 621 FLD. 6/5

•INDEXES
RADIATION DAMAGE
RADIATION EFFECTS INFORMATION CENTER MONTHLY ACCESSIONLIST. COORDINATE INDEX. PART II, OCTOBER

798-319 O - 66 - 8

1, 1969 TONOVEMBER 30, 1969.
AD-629 787 FLD. 18/8

•INDIA
NATIONAL DEFENSE
INDIAN ECONOMY AND DEFENSE.
AD-629 779 FLD. 5/3

•INDIAN OCEAN
OCEANOGRAPHIC DATA
BIBLIOGRAPHY ON PHYSICAL OCEANOGRAPHY OF THE INDIAN OCEAN.
AD-629 966 FLD. 8/10

•INDIUM ALLOYS
ANTIMONY ALLOYS
ARTIFICIAL METALS: INSB, THE SN ALLOYS WITH INSB, ANDMETALLIC INTE.
AD-629 377 FLD. 11/6
HIGH-MOBILITY LOW-MELTING-POINT GROUP III-V COMPOUNDSEMICONDUCTORS.
AD-629 962 FLD. 20/12

•INDUCTANCE
SUPERCONDUCTORS
ROLE OF INDUCTANCE IN SUPERCONDUCTING ENERGY STORAGECIRCUITS.
AD-629 707 FLD. 20/3

•INDUSTRIAL MEDICINE
PERSONNEL MANAGEMENT
USE OF STATISTICAL CONTROL CHART TECHNIQUES IN A SICK LEAVECONTROL PROGRAM.
AD-629 747 FLD. 5/9

•INDUSTRIAL RESEARCH
USSR
TRANSLATION OF RUSSIAN RESEARCH: SOVIET CYBER.
AD-629 290 FLD. 9/2

•INELASTIC SCATTERING
ELECTRONS
NUCLEAR EXCITATIONS IN B10, B11, AND N14 BY INELASTICELECTRON SCATTERING AT 180 DEG.
AD-629 270 FLD. 20/8

•INFORMATION RETRIEVAL
MANAGEMENT ENGINEERING
PROPOSED RESEARCH ON MANAGEMENT INFORMATIONSYSTEMS.
AD-629 730 FLD. 5/1

•INFORMATION THEORY
CIRCUITS
REPRINT: CUT-SET MATRICES AND LINEAR CODES.
AD-629 380 FLD. 9/4

COMMUNICATION SYSTEMS
MEASURING THE VALUE OF INFORMATION, WITH IMPLICATIONSFOR COMMUNICATIONS SYSTEMS.
AD-629 789 FLD. 9/4

DATA PROCESSING SYSTEMS
A METHOD FOR INVESTIGATING THE BEHAVIOR OF ATTRIBUTES WHICHBELONG TO INFORMATION STORAGE AND RETRIEVAL SYSTEMS.
AD-629 658 FLD. 9/2

PROBABILITY
SIMPLE APPROACH TO THE ZERO-CROSSING PROBLEM.
AD-629 269 FLD. 12/1

STOCHASTIC PROCESSES
STOCHASTIC FLOW OF MESSAGES AND ITS EFFICIENT TRANSMISSIONTHROUGH COMMUNICATION NETS.
AD-629 295 FLD. 9/4

•INFRARED RADIATION
ABSORPTION
ABSORPTION BY CO2 BETWEEN 6600 AND 7129/CM(1.4 MICRON REGION) IN PLANETARY ATMOSPHERES.
AD-629 968 FLD. 3/3

REFLECTOMETERS
OPTICAL SURFACE DISCRIMINATOR DESIGNED FOR DISCRIMINATINGBETWEEN REFLECTING AND NONREFLECTING SURFACES FOR OPTICALRADIATION IN THE NEAR INFRARED.
AD-629 286 FLD. 20/6

•INFRARED SPECTROSCOPY
FLUORIDES
REPRINT: INFRARED EVIDENCE FOR DIMER FORMATIONOF SULFUR TETRAFLUORIDE AND OF THIONYL FLUORIDE ATLOW TEMPERATURES.
AD-629 402 FLD. 7/2

FURANS
REPRINT: FAR-INFRARED SPECTRUM OF TETRAHYDROFURAN:SPECTROSCOPIC EVIDENCE FOR PSEUDOROTATION.
AD-629 492 FLD. 7/3

HEAT-RESISTANT GLASS
INFRARED STUDY OF THE NATURE OF THE HYDROXYL GROUPS ON THESURFACE OF POROUS VYCOR GLASS.
AD-629 999 FLD. 7/4

•INSTALLATION
CONTROLLED ATMOSPHERES
ENVIRONMENTAL CONTROL AND INSTALLATION OF A PRECISIONAERIAL CAMERA.
AD-629 742 FLD. 14/5

•INSTRUCTION MANUALS
CONTROL SYSTEMS
OPERATION AND MAINTENANCE MANUAL FOR VACUUM AND INBLEEDCONTROL SYSTEM, AIR LOCK CONTROL SYSTEM, CHAMBER LINERDIFFERENTIAL PRESSURE CONTROL SYSTEM AND INTERIOR GASFLOW RECORDING SYSTEM FOR ALTITUDE RESEARCH CHAMBERSA1, A2, A3, AND A4.
AD-629 587 FLD. 14/2

•INTEGRATED CIRCUITS
SILICON
INTEGRATED SILICON DEVICE TECHNOLOGY. VOLUME IX. EPITAXY.
AD-629 520 FLD. 9/1

•INTELLIGIBILITY
SPEECH
PREDICTING THE INTELLIGIBILITY OF WORDS III.
AD-629 256 FLD. 5/10

•INTERCOMMUNICATION SYSTEMS
SPEECH TRANSMISSION
FREQUENCY-RESPONSE CHARACTERISTICS OF AN IMPROVED TRANSISTORIZED MILITARIZED INTERCOM SYSTEM PROPOSED BY THE USNUNDERWATER SOUND LABORATORY FOR USE IN MAINTENACE ANDTESTING OF THE AN/BQS-6 SONAR SYSTEM.
AD-629 795 FLD. 17/2

•INTERFERENCE
FILMS
REPRINT: OPTICAL INTERFERENCE IN CURVED SOAP FILMS.
AD-629 909 FLD. 7/4

•INTERMETALLIC COMPOUNDS
SUPERCONDUCTIVITY
REPRINT: SUPERCONDUCTIVITY IN THE ARTIFICIAL METALS:METALLIC INDIUM ANTIMONIDE, THE INDIUM-ANTIMONIDETIN ALLOYS, AND METALLIC INDIUM TELLURIDE.
AD-629 376 FLD. 20/12

•INTESTINES
NUCLEOPROTEINS
REPRINT: NUCLEOPROTEIN CHANGES IN THE INTESTINAL MUCOSA OFPATIENTS WITH TROPICAL SPRUE.
AD-629 629 FLD. 6/5

PHOSPHORIC MONESTER HYDROLASES
REPRINT: DEMONSTRATION OF ALKALINE PHOSPHATASE IN GROSSSPECIMENS OF SMALL INTESTINE.
AD-629 391 FLD. 6/5

•INVENTORY ANALYSIS
MAINTENANCE
INVENTORY RANGE PROBLEM: ANALYSIS OF STOCKAGE AS REPAIRPARTS.
AD-629 292 FLD. 15/5

•INVENTORY CONTROL
MONTE CARLO METHOD
MONTE CARLO TECHNIQUES OF SIMULATION APPLIED TO A SINGLEITEM INVENTORY SYSTEM.
AD-629 669 FLD. 9/1

•IONIZATION
ASTROPHYSICS
ASTROPHYSICAL IMPLICATIONS OF AUTOIONIZATION.
AD-629 713 FLD. 3/2

HELIUM GROUP GASES
REPRINT: IONIZATION OF INERT GAS ATOMS BY ELECTRON ANDPROTON IMPACT AT HIGH ENERGIES.
AD-629 277 FLD. 20/8

IONOSPHERE
DETERMINATION OF IONOSPHERIC LOSS COEFFICIENTS FROMOBSERVATIONS ON SATELLITE X-RAY FLUXES AND SUDDENIONOSPHERIC DISTURBANCES.
AD-629 392 FLD. 4/1

•IONIZATION POTENTIALS
MOLECULAR SPECTROSCOPY
UREY-BRADLEY FORCE CONSTANTS APPLICATION TO FOUR FIRSTROW IONS.
AD-629 833 FLD. 7/4

•IONIZATION TRAILS
RADAR REFLECTIONS
RADAR SCATTERING FROM SATELLITE WAKES.
AD-629 990 FLD. 17/9

•IONOSPHERE
ELECTROMAGNETIC WAVE REFLECTIONS
LOWEST ELECTRON DENSITY NECESSARY FOR WAVE REFLECTION FROMTHE IONOSPHERIC D-LAYER.
AD-629 962 FLD. 4/1

IONIZATION
DETERMINATION OF IONOSPHERIC LOSS COEFFICIENTS FROMOBSERVATIONS ON SATELLITE X-RAY FLUXES AND SUDDENIONOSPHERIC DISTURBANCES.
AD-629 392 FLD. 4/1

•IONOSPHERIC PROPAGATION
RADIO WAVES
MEASUREMENT OF IONOSPHERIC EFFECTS ON CURTS (COMMONUSER RADIO TRANSMISSION SOUNDING) SOUNDER/COMMUNICATIONS TERMINAL SEPARATIONS.
AD-629 293 FLD. 20/14
MEASUREMENT OF PHASE AND AMPLITUDE RADIO WAVE INTERACTION AT UNIVERSITY PARK, PENNSYLVANIA, FOR APRIL-MAYJUNE, 1969.
AD-629 393 FLD. 4/1

RADIOFREQUENCY POWER
WAVE INTERACTION EXPERIMENTS AT HIGH POWER.
AD-629 847 FLD. 20/14

•IONS
MOLECULAR PROPERTIES
UREY-BRADLEY FORCE CONSTANTS APPLICATION TO FOUR FIRSTROW IONS.

AD-629 833 FLD. 7/4

NUCLEAR MAGNETIC RESONANCE
REPRINT: DETERMINATION OF THE CLOSEST APPROACH OF IONS INIONIC MELTS BY MEANS OF NUCLEAR RESONANCE.
AD-629 333 FLD. 7/4

•IRON
CORROSION
POTENTIOSTATIC CORROSION STUDIES OF IRON, TYPE-304 ANDTYPE-321 STAINLESS STEEL.
AD-629 269 FLD. 11/6

ION EXCHANGE
RARE-EARTH-IRON EXCHANGE INTERACTION IN THE GARNETS.II-EXCHANGE POTENTIAL FOR YTTERBIUM.
AD-629 719 FLD. 7/4

•IRON ALLOYS
NICKEL ALLOYS
REPRINT: HALL EFFECTS, RESISTIVITY, AND THERMOPOWER IN FEAND FE(1-X)NI(X) FOR X=0 TO 0.2.
AD-629 381 FLD. 20/3

•ITERATIVE METHODS
APPROXIMATION(MATHEMATICS)
IMPROVING AN APPROXIMATE SOLUTION OF A FUNCTIONAL EQUATIONBY DEFERRED CORRECTIONS.
AD-629 837 FLD. 12/1

•JET ENGINE FUELS
CHEMICAL PROPERTIES
TRANSLATION OF RUSSIAN, HUNGARIAN, AND CHINESE RESEARCH:ANALYSIS OF DATA ON T-5 FUEL.
AD-629 791 FLD. 21/4

COMBUSTION
TRANSLATION OF RUSSIAN RESEARCH: THE ROLE OF KINETIC ANDDIFFUSIONAL FACTORS IN THE COMBUSTION OF FUELS IN GASTURBINE ENGINES.
AD-629 729 FLD. 21/4

•JET MIXING FLOW
GAS FLOW
TRANSLATION OF RUSSIAN RESEARCH: MIXING OF CONCENTRICHIGH-VELOCITY AIRSTREAMS.
AD-629 809 FLD. 20/4

TURBULENCE
EXPERIMENTAL STUDY OF THE TURBULENT MIXING OF A SUBSONICAND A SUPERSONIC JET IN A CLOSED DUCT.
AD-629 591 FLD. 20/4

•JET STREAMS(METEOROLOGY)
ANALYSIS OF VARIANCE
SPACE VARIATIONS IN AXIS HEIGHT OF THE JET STREAM CORE.
AD-629 665 FLD. 4/2

•JETS
FLUID DYNAMIC PROPERTIES
REGIONS OF NEGATIVE TURBULENT ENERGY-PRODUCTION.
AD-629 302 FLD. 20/4

•JETTISONABLE COCKPITS
EXPLOSIVE ACTUATORS
QUALIFICATION OF THRUSTER, CARTRIDGE ACTUATED, XM25.
AD-629 425 FLD. 19/1

FUZES(ORDNANCE)
APPLICATIONS OF PYROTECHNICS TO SMALL ARMS AMMUNITIONAND MILD DETONATING FUSE SYSTEMS.
AD-629 607 FLD. 19/1

•KETONES
FLUORINE COMPOUNDS
REPRINT: FLUORINATED NITROGEN HETEROCYCLES VIACYCLIZATION. TRIFLUOROMETHYL-2-PYRIDONES FROM FLUORINATED1,3-DICARBONYLS AND CYANOACETAMIDE.
AD-629 699 FLD. 7/3

PYROLYSIS
REPRINT: PYROLYSIS STUDIES. THERMAL RETROGRADE ALDOLCONDENSATION OF BETA-HYDROXY KETONES.
AD-629 374 FLD. 7/4

•KIDNEYS
DISEASES
REPRINT: GOODPASTURE'S SYNDROME. A CLINICOPATHOLOGICENTITY.
AD-629 339 FLD. 6/5

•LACTOBACILLUS
VITAMIN B COMPLEX
REPRINT: BIOTIN TRANSPORT AND ACCUMULATION BY CELLS OFLACTOBACILLUS PLANTARUM. GENERAL PROPERTIES OF THE SYSTEM.
AD-629 491 FLD. 6/13

•LAMINAR BOUNDARY LAYER
AREA SUCTION
INVESTIGATION OF METHODS FOR RE-ESTABLISHMENT OF A LAMINARBOUNDARY LAYER FROM TURBULENT FLOW.
AD-629 488 FLD. 20/4

NUMERICAL ANALYSIS
TRANSLATION OF RUSSIAN RESEARCH: CALCULATION OF A LAMINARBOUNDARY LAYER FOR SUBLIMABLE SURFACE.
AD-629 761 FLD. 20/4

•LAMINATED PLASTICS
FILMS
COMPOSITE PLASTIC FILMS FOR FLEXIBLE TRANSPARENT PACKAGING.
AD-629 574 FLD. 13/9

•LANCHESTER EQUATIONS
MILITARY STRATEGY
LANCHESTER MODELS FOR PHASE II INSURGENCY.
AD-629 457 FLD. 15/7

•LASERS
CRYSTALS
CRYSTALS FOR OPTICAL MASER APPLICATIONS.
AD-629 558 FLD. 20/5

FREQUENCY MODULATION
TECHNIQUES FOR SUPER-MODE OSCILLATION.
AD-629 895 FLD. 20/5

PUMPING(OPTICAL)
PUMPED TRANSFORMER LASERS.
AD-629 481 FLD. 20/5

RAMAN SPECTROSCOPY
CONTINUOUS-WAVE STIMULATED RAMAN EMISSION.
AD-629 301 FLD. 20/6

REFLECTOMETERS
OPTICAL SURFACE DISCRIMINATOR DESIGNED FOR DISCRIMINATINGBETWEEN REFLECTING AND NONREFLECTING SURFACES FOR OPTICALRADIATION IN THE NEAR INFRARED.
AD-629 286 FLD. 20/6

SCIENTIFIC RESEARCH
MICROWAVE RESEARCH.
AD-629 567 FLD. 20/5

SEMICONDUCTORS
TRANSLATION OF EAST GERMAN RESEARCH: GAAS SEMICONDUCTRO LASER.
AD-629 728 FLD. 20/5

SOLID STATE PHYSICS
SOLID STATE RESEARCH.
AD-629 611 FLD. 20/11

SYMMETRY(CRYSTALLOGRAPHY)
SYMMETRICAL LASER CRYSTALS.
AD-629 519 FLD. 20/5

SYMPOSIA
PROCEEDINGS OF THE CHEMICAL LASER CONFERENCE, UNIVERSITYOF CALIFORNIA, SAN DIEGO, SEPTEMBER 9-11, 1969.
AD-629 317 FLD. 20/5

•LEARNING
GRAMMARS
REPRINT: INFERRING A GRAMMAR FROM RESPONSES:DISCUSSION OF GOUGH AND SEGAL'S COMMENT.
AD-629 249 FLD. 5/10

PERFORMANCE TESTS
REPRINT: INTER-PHASE TIME INTERVALS IN SEWARD'S LATENTLEARNING EXPERIMENT.
AD-629 246 FLD. 5/10

•LEARNING MACHINES
ADAPTIVE SYSTEMS
AUTOMATIC ADJUSTMENT IN A CONTINUOUS ENVIRONMENT.
AD-629 548 FLD. 9/2

NETWORKS
NOTES ON CLASSIFICATION CAPACITIES.
AD-629 937 FLD. 9/2

•LIFE SUPPORT
CONTROLLED ATMOSPHERES
POTASSIUM SUPEROXIDE ATMOSPHERE CONTROL UNIT.
AD-629 556 FLD. 6/11

SUBMARINES
STUDIES OF CILIARY MUCUS TRANSPORT IN A CLOSED CABINATMOSPHERE.
AD-629 759 FLD. 6/11

WATER SUPPLIES
WATER RECOVERY FROM HUMAN LIQUID WASTES BY DISTILLATIONAND CHEMICAL OXIDATION.
AD-629 671 FLD. 13/2

•LIGHT
ABSORPTION
ELECTROOPTICS: EXCITED STATE SATURABLE ABSORBER FOR1.06 MICRON WAVELENGTH.
AD-629 361 FLD. 20/6

•LINE SPECTRUM
FLUORIDES
ZEEMAN SPLITTING OF NARROW LINES IN CRYSTALLINE MNF2,FEF2, AND COF2. EVIDENCE FOR SPIN-WAVE EXCITATIONS.
AD-629 803 FLD. 7/4

IRON
REPRINT: COMPARISON OF ATOMIC LS-COUPLING LINE ANDMULTIPLET STRENGTHS WITH OBSERVATIONS OF FE I.
AD-629 279 FLD. 3/2

PLASMA MEDIUM
LINE-REVERSAL MEASUREMENTS OF EXCITATION AND ELECTRONTEMPERATURE IN A SHOCK TUBE.
AD-629 719 FLD. 7/4

•LINEAR PROGRAMMING
ALGORITHMS
ALTERNATIVE INTERPRETATION OF THE PRIMAL-DUAL METHODAND SOME RELATED PARAMETRIC METHODS.
AD-629 499 FLD. 12/2
REPRINT: A COMPLETE

CONSTRUCTIVE ALGORITHM FOR THEGENERAL MIXED LINEAR PROGRAMMING PROBLEM.
AD-629 676 FLD. 12/2

DYNAMIC PROGRAMMING
MARKOV RENEWAL PROGRAMMING BY LINEAR FRACTIONALPROGRAMMING.
AD-629 429 FLD. 12/2

NUMBERS
SOME ASPECTS OF INTEGER LINEAR PROGRAMMING.
AD-629 583 FLD. 12/2

OPERATIONS RESEARCH
ON TWO COMMODITY NETWORK FLOWS.
AD-629 900 FLD. 12/2
FEASIBILITY OF TWO COMMODITY NETWORK FLOWS.
AD-629 901 FLD. 12/2

*LINEAR SYSTEMS
MEASUREMENT
MEASUREMENT OF RANDOMLY TIME-VARYING LINEAR SYSTEMS.
AD-629 693 FLD. 9/4

*LIPIDS
ACCLIMATIZATION
REPRINT: EFFECT OF ACUTE AND CHRONIC COLD EXPOSURE ONTISSUE LIPIDS IN THE RAT.
AD-629 794 FLD. 6/19

*LIQUEFIED GASES
THERMODYNAMICS
EXPERIMENTAL PROGRAM TO DETERMINE THE THERMODYNAMICPROPERTIES OF SOLUTIONS OF LIQUEFIED LIGHT GASES.
AD-629 542 FLD. 20/13

*LIQUID LEVEL GAGES
HELIUM
SIMPLE LEVEL INDICATOR FOR LIQUID HELIUM AT ALLTEMPERATURES.
AD-629 471 FLD. 14/2

*LIQUIFIED GASES
LIQUID LEVEL GAGES
SIMPLE LEVEL INDICATOR FOR LIQUID HELIUM AT ALLTEMPERATURES.
AD-629 471 FLD. 14/2

*LITHOSPHERE
SEISMOLOGY
DETERMINATION OF CRUSTAL THICKNESS FROM THE SPECTRUM OFP WAVES.
AD-629 849 FLD. 8/7

*LOG PERIODIC ANTENNAS
ELECTROMAGNETIC WAVE REFLECTIONS
SURFACE WAVES ON ANISOTROPIC SURFACES.
AD-629 602 FLD. 20/14

*LOGISTICS
NAVAL RESEARCH
NAVAL RESEARCH LOGISTICS QUARTERLY: SELECTED PAPERS.
AD-629 756 FLD. 15/5

*LOW ALTITUDE
NAVIGATION
GEOGRAPHIC ORIENTATION IN AIRCRAFT PILOTS: METHODOLOGICALADVANCEMENT.
AD-629 616 FLD. 1/2

*LUBRICANTS
AIRCRAFT GUNS
FACTORS AFFECTING THE ICING RESISTANCE OF LUBRICANTS FORAIRCRAFT ORDNANCE.
AD-629 599 FLD. 11/8

COLD WORKING
DEVELOPMENT OF A METHOD FOR EVALUATING LUBRICANTS FORCOLD WORKING METALS.
AD-629 491 FLD. 11/8

STABILITY
TRANSLATION OF RUSSIAN RESEARCH: RADIATION STABILITY OFLUBRICANTS.
AD-629 790 FLD. 11/8

*LUNAR CRAFT
EXHAUST FLAMES
RADAR INTERFERENCE EFFECTS IN THE LEM DESCENT ENGINEEXHAUST PLUME. CHEMI-IONIZATION IN THE LEM PROPELLANTSYSTEM. PREDICTION OF REFRACTION AND ATTENUATION OF THE LEMRADAR BEAMS.
AD-629 981 FLD. 22/1

SOFT LANDINGS
MINIMUM FUEL ANALYSIS OF A LUNAR SOFT LANDING MISSIONUSING FEEDBACK CONTROL.
AD-629 681 FLD. 22/3

*LUNGS
DISEASES
REPRINT: GOODPASTURE'S SYNDROME. A CLINICOPATHOLOGICENTITY.
AD-629 339 FLD. 6/5

PHYSIOLOGY
VENTILATION OF PARTS OF THE LUNG WITH CHEMICALS AND GASESIN AQUEOUS SOLUTION.
AD-629 757 FLD. 6/16

*LUXEMBERG EFFECT
IONOSPHERIC DISTURBANCES
WAVE INTERACTION EXPERIMENTS AT HIGH POWER.
AD-629 897 FLD. 20/14

*LUXEMBOURG EFFECT
ATMOSPHERIC SOUNDING
MEASUREMENT OF PHASE AND AMPLITUDE RADIO WAVE INTERACTION AT UNIVERSITY PARK, PENNSYLVANIA, FOR APRIL-MAYJUNE, 1965.
AD-629 393 FLD. 4/1

*MACHINING
CERAMIC MATERIALS
MACHINING HIGH PURITY ALUMINA.
AD-629 489 FLD. 13/8

*MAGNESIUM COMPOUNDS
MONOXIDES
REPRINT: STRUCTURE OF EXPLOSIVELY SHOCKED MGO CRYSTALS.
AD-629 639 FLD. 20/2

OXIDES
REPRINT: MECHANICAL RELAXATION OF A POINT DEFECT INMAGNESIUM OXIDE.
AD-629 383 FLD. 20/2

*MAGNETIC GUIDANCE
SATELLITE ATTITUDE
PASSIVE SYSTEM FOR DETERMINING THE ATTITUDE OF ASATELLITE.
AD-629 479 FLD. 22/1

*MAGNETIC PROPERTIES
HOLMIUM
ELECTRON SCATTERING EXPERIMENTS: MEASUREMENT OF TRANSMISSION OF 8.3-MEV NEUTRONS PRODUCED BY A VAN DE GRAAFFGENERATOR; MAGNETIZATION CURVE OF HOLMIUM.
AD-629 298 FLD. 20/8

*MAGNETIC RECORDING SYSTEMS
COMPUTER STORAGE DEVICES
TRANSLATION OF RUSSIAN RESEARCH: MAGNETIC OPERATIONALMEMORY DEVICE OF AN INFORMATION-LOGICAL MACHINE.
AD-629 893 FLD. 9/2

*MAGNETIC STORMS
ARCTIC REGIONS
MORPHOLOGY OF HIGH LATITUDE GEOMAGNETIC DISTURBANCEAND CORRELATIONS WITH SATELLITE MAGNETIC FIELD MEASUREMENTS.
AD-629 319 FLD. 8/14

THEORY
SURVEY OF MAGNETIC STORMS.
AD-629 776 FLD. 8/14

*MAGNETISM
SUPPRESSORS
INTRODUCTORY THEORETICAL STUDY OF CONSTANT PERMEABILITYMAGNETIC SHIELDING.
AD-629 312 FLD. 20/3

THEORY
THEORIES OF MAGNETISM.
AD-629 792 FLD. 20/3

*MAGNETOHYDRODYNAMIC GENERATORS
SCIENTIFIC RESEARCH
RESEARCH ON NEW CONCEPTS IN ENERGY CONVERSION.
AD-629 736 FLD. 10/2

*MAGNETOHYDRODYNAMICS
ELECTROMAGNETS
RESEARCH IN HIGH TEMPERATURE PLASMAS FOR SPACE APPLICATIONS.VOLUME II. ENGINEERING.
AD-629 486 FLD. 20/9

INTEGRAL EQUATIONS
FREDHOLM INTEGRAL EQUATION SOLUTION FOR VARIABLECONDUCTIVITY MAGNETOHYDRODYNAMIC CHANNEL FLOW.
AD-629 667 FLD. 20/9

PLASMA MEDIUM
TRANSLATION OF RUSSIAN RESEARCH: CONDUCTIVITY OF PLASMAIN A TRANSVERSE MAGNETIC FIELD.
AD-629 839 FLD. 20/9

*MAGNETOMETERS
PROTONS
PROTON MAGNETOMETER TEST ON BOARD A SURVEY AIRCRAFT.
AD-629 281 FLD. 8/14

*MAGNETOSTRICTIVE ELEMENTS
TRANSDUCERS
MEASUREMENTS ON ONE AND TWO LINES OF FREE-FLOODEDMAGNETOSTRICTIVE RING TRANSDUCERS.
AD-629 709 FLD. 20/1

*MAGNETOSTRITION
STEEL
REPRINT: INVERSE MAGNETOSTRICTIVE EFFECT OF ULTRASONICSTRESS WAVES IN STEEL.
AD-629 691 FLD. 11/6

*MAGNETO-OPTIC EFFECT
FLUORIDES
ZEEMAN SPLITTING OF NARROW LINES IN CRYSTALLINE MNF2,FEF2, AND COF2. EVIDENCE FOR SPIN-WAVE EXCITATIONS.
AD-629 803 FLD. 7/4

MOLECULAR ORBITALS
COVALENCY PARAMETERS AND THE G FACTOR FOR NI(2): KMGF3.
AD-629 949 FLD. 7/4

*MAINTENANCE
COSTS
ECONOMIC CONSIDERATIONS IN ESTABLISHING AN OVERHAULCYCLE FOR SHIPS: AN EMPIRICAL ANALYSIS.
AD-629 789 FLD. 13/10

*MANAGEMENT ENGINEERING
INFORMATION RETRIEVAL
PROPOSED RESEARCH ON MANAGEMENT

INFORMATIONSYSTEMS.
AD-629 730 FLD. 5/1

LOGISTICS
HUMAN JUDGMENT AS A FACTOR IN THE GENERATION OF SHIPS'ALLOWANCE LISTS.
AD-629 993 FLD. 15/5

OPERATIONS RESEARCH
MANAGEMENT SCIENCES AND MANAGEMENT--SOME REQUIREMENTS FOR FURTHER DEVELOPMENT.
AD-629 729 FLD. 5/1

PROPULSION
IMPACT OF THE HIGH DEVELOPMENT COST OF ADVANCED FLIGHTPROPULSION SYSTEMS ON DEVELOPMENT POLICY.
AD-629 856 FLD. 5/1

*MANAGEMENT PLANNING
ARMED FORCES BUDGETS
CONCEPTS AND TECHNIQUES FOR SUMMARIZING DEFENSE SYSTEMCOSTS.
AD-629 947 FLD. 5/1

COMMUNICATION SYSTEMS
SATELLITE COMMUNICATION CONTROL FACILITY.
AD-629 643 FLD. 17/2.1

GUIDED MISSILE RANGES
SOME THOUGHTS ON RANGE PLANNING AND OPERATION.
AD-629 923 FLD. 22/4

PROBLEM SOLVING
PERT INFLUENCED REFLECTIVE THINKING APPROACH TO PROBLEMSOLVING DISCUSSION.
AD-629 670 FLD. 9/10

*MANNED SPACECRAFT
POWER SUPPLIES
ELECTRICAL POWER SYSTEMS FOR THE MANNED ORBITING LABORATORY.
AD-629 668 FLD. 22/2

*MAN-MACHINE SYSTEMS
MOVING TARGET INDICATORS
HUMAN VS FILTER AS DATA EXTRAPOLATOR IN A TWO-COORDINATE,SAMPLED-DATA TRACKING SYSTEM.
AD-629 994 FLD. 5/8

PERFORMANCE(HUMAN)
TIME, UNCERTAINTY, AND INCENTIVE VARIABLES IN COMPOSITETASK PERFORMANCE.
AD-629 830 FLD. 5/8

RENDEZVOUS SPACECRAFT
INVESTIGATION OF 'PREDICTOR' DISPLAYS FOR ORBITAL RENDEZVOUS, PROGRAM SUMMARY.
AD-629 967 FLD. 22/3

*MAPPING(TRANSFORMATIONS)
ALGEBRA
REPRINT: MAPPINGS FOR MODULAR ARITHMETIC.
AD-629 989 FLD. 9/2

*MAPS
ELECTROPHOTOGRAPHY
EVALUATION AND TEST OF A FIVE-COLOR ELECTROSTATICPRINTING MACHINE FOR THE REPRODUCTION OF TOPOGRAPHICMAPS AND CHARTS.
AD-629 839 FLD. 14/5

*MARINE BIOLOGY
CRUSTACEA
REPRINT: AN ASPECT OF EUPHAUSIID ECOLOGY REVEALED BYECHO-SOUNDING IN A FJORD.
AD-629 920 FLD. 8

REPTILES
TRANSLATION OF RUSSIAN REPORT: SEA SNAKES.
AD-629 690 FLD. 8

*MARINE GEOPHYSICS
CALIFORNIA
OFFSHORE GRAVITY AND MAGNETIC ANOMALIES IN THESANTA BARBARA CHANNEL, CALIFORNIA.
AD-629 700 FLD. 8/4

*MASERS
EXPERIMENTAL DESIGN
STUDY OF SOLID-STATE AND TRAVELING-WAVE MASER TECHNIQUES.
AD-629 359 FLD. 20/5

*MASS TRANSFER
ABLATION
EFFECTS OF MASS-TRANSFER ON THE DYNAMIC STABILITY OFSLENDER CONES.
AD-629 933 FLD. 20/4

NUCLEAR REACTIONS
REPRINT: SOLUBLE SEMICLASSICAL PARTICLE TRANSFER PROBLEM.
AD-629 678 FLD. 20/8

*MASS-ENERGY RELATION
POTENTIAL ENERGY
REPRINT: ACTUAL MASS OF POTENTIAL ENERGY, CORRECTIONTO CLASSICAL RELATIVITY.
AD-629 917 FLD. 20/10
REPRINT: ACTUAL MASS OF POTENTIAL ENERGY.
AD-629 918 FLD. 20/10

*MATERIALS
RADIATION DAMAGE
RADIATION EFFECTS INFORMATION CENTER MONTHLY ACCESSIONLIST. COORDINATE INDEX. PART II, OCTOBER 1, 1965 TONOVEMBER 30, 1965.
AD-629 787 FLD. 18/8
RADIATION EFFECTS INFORMATION CENTER MONTHLY ACCESSIONLIST, ABSTRACT NO. 29825 TO 29878, PART I, NOVEMBER 1,1965 TO NOVEMBER 30, 1965.
AD-629 788 FLD. 18/8

SCIENTIFIC RESEARCH
MATERIALS RESEARCH CENTER SIXTH ANNUAL REPORT, 1 FEBRUARY1965 TO 30 SEPTEMBER 1965.
AD-629 927 FLD. 11/7

SOLID STATE PHYSICS
SOLID STATE RESEARCH.
AD-629 611 FLD. 20/11

*MATHEMATICAL MODELS
SOUND TRANSMISSION
ACOUSTIC SPREADING LOSS IN AN INHOMOGENEOUS MEDIUM.
AD-629 959 FLD. 20/1

*MATHEMATICAL PROGRAMMING
LOGISTICS
NAVAL RESEARCH LOGISTICS QUARTERLY: SELECTED PAPERS.
AD-629 756 FLD. 15/5

*MATRIX ALGEBRA
ALGORITHMS
REPRINT: FINDING THE INVERSE AND CONNECTIONS OF A TYPE OFLARGE SPARSE MATRIX.
AD-629 674 FLD. 12/2

DIFFERENTIAL EQUATIONS
GRADIENT MATRICES AND MATRIX CALCULATIONS.
AD-629 926 FLD. 12/1

PROGRAMMING(COMPUTERS)
REPRINT: CALCULATING MATRIX ELEMENTS BETWEEN CONFIGURATIONSWITH SEVERAL OPEN 1 SHELLS.
AD-629 276 FLD. 7/4

*MEASURE THEORY
DISTRIBUTION FUNCTIONS
ERGODICITY OF THE DISTRIBUTION FUNCTION OF A STATIONERYPROCESS.
AD-629 907 FLD. 12/1

STATISTICAL MECHANICS
STATES IN QUANTUM STATISTICAL MECHANICS.
AD-629 816 FLD. 20/10

*MEASURING DEVICES(ELECTRICAL + ELECTRO
RADIO FIELDS
FIELD STRENGTH MEASUREMENTS.
AD-629 590 FLD. 14/2

*MEAT
ACCEPTABILITY
COMPARISON OF TENDERNESS PARAMETERS IN DEHYDRATEDMEAT.
AD-629 906 FLD. 6/8

*MECHANICAL FASTENERS
AIRPLANE PANELS
EVALUATION OF CORROSION PROTECTION BY COATINGSAPPLIED TO AIRCRAFT FASTENERS.
AD-629 939 FLD. 11/6

*MECHANICAL PROPERTIES
MATHEMATICAL ANALYSIS
TRANSLATION OF RUSSIAN RESEARCH: NEWS OF SCHOOLS OFHIGHER EDUCATION. MATHEMATICS. (SELECTED ARTICLES).
AD-629 891 FLD. 12/1

POLYMERS
REPRINT: DYNAMIC BIREFRINGENCE AND MECHANICAL LOSSSPECTRA OF CRYSTALLINE POLYMERS.
AD-629 382 FLD. 11/9

*MECHANICAL WAVES
STRUCTURAL SHELLS
REPRINT: RESPONSE OF A CYLINDRICAL SHELL TO AN ELASTICWAVE.
AD-629 367 FLD. 20/11

*MECHANICAL WORKING
EUTECTICS
STUDY OF THE EFFECT OF SOLIDIFICATION STRUCTURES ON THESTRENGTH OF METALS.
AD-629 772 FLD. 11/6

*MEDICAL EQUIPMENT
PURIFICATION
REPRINT: STERILIZATION OF POLYMERS USED IN MEDICINE.
AD-629 904 FLD. 6/12

*MEDICAL EXAMINATION
SUBMARINE PERSONNEL
CURRENT PROBLEMS IN ENLISTED SUBMARINE PHYSICALEXAMINATIONS.
AD-629 779 FLD. 5/9

*MEDICAL RESEARCH
BIBLIOGRAPHIES
REPRINT: PUBLICATIONS OF THE NAVAL BIOLOGICAL LABORATORY,SCHOOL OF PUBLIC HEALTH, UNIVERSITY OF CALIFORNIA ANDNAVAL MEDICAL RESEARCH UNIT NO. 1, BERKELEY,CALIFORNIA.
AD-629 600 FLD. 6/5

NAVAL RESEARCH
SUMMARIES OF NAVAL MEDICAL RESEARCH REPORTS.
AD-629 930 FLD. 6/5

*MEDICINE
PLANTS(BOTANY)
TRANSLATION OF RUSSIAN RESEARCH: CABBAGE THERAPY. MEDICINAL PROPERTIES OF THE PLANTS ALOE AND CALENDULA.
AD-629 984 FLD. 6/3

•MEMBRANES(BIOLOGY)
BIOLOGICAL STAINS
REPRINT: STAINING PROPERTIES OF LANTHANUM ON CELLMEMBRANES.
AD-629 620 FLD. 6/5

•MENTAL DISORDERS
SERODIAGNOSIS
REPRINT: SEROLOGIC INDICES OF MENTAL DISORDERS.
AD-629 335 FLD. 6/5

•MERCURY(PLANET)
RADIO ASTRONOMY
RADIO ECHO OBSERVATIONS OF VENUS AND MERCURYAT 23 CM WAVELENGTH.
AD-629 731 FLD. 3/1

•METABOLISM
BILE PIGMENTS
REPRINT: BILIRUBIN-CARBON-14 METABOLISM IN ISOLATEDINTESTINAL LOOPS.
AD-629 915 FLD. 6/5

•METAL PLATES
IMPACT SHOCK
TRANSIENT ANALYSIS OF OBLIQUE IMPACT ON PLATES.
AD-629 379 FLD. 20/11

•METALORGANIC COMPOUNDS
BOROHYDRIDES
REPRINT: CARBAMETALLIC BORON HYDRIDE DERIVATIVES: THEPI-C5H5FE(PI-B9C2H11)SYSTEM.
AD-629 388 FLD. 7/2
REPRINT: CARBAMETALLIC BORON HYDRIDE DERIVATIVES:APPARENT ANALOGS OF PI-CYCLOPENTADIENYLMANGANESE AND-RHENIUM TRICARBONYLS.
AD-629 389 FLD. 7/2
AD-629 390 FLD. 7/2

POLYMERS
TRANSLATION OF RUSSIAN RESEARCH: SYNTHESIS ANDPROPERTIES OF ORGANOELEMENTAL POLYMERS WITH SILICON,GERMANIUM, AND TIN IN THE CHAIN.
AD-629 725 FLD. 7/3

•METALS
DRAWING(MACHINE PROCESSING)
INVESTIGATION OF THE NATURE OF STRUCTURAL DAMAGE IN METALFORMING PROCESSES.
AD-629 257 FLD. 13/8

SYNTHESIS(CHEMISTRY)
ARTIFICIAL METALS: INSB, THE SN ALLOYS WITH INSB, ANDMETALLIC INTE.
AD-629 377 FLD. 11/6

•METEOROLOGICAL PARAMETERS
ANALOGTO-DIGITAL CONVERTERS
SAMPLING AND DIGITIZING OF METEOROLOGICAL DATA.
AD-629 627 FLD. 9/2

•METHANE
POLYMERIZATION
REPRINT: POSITIVE-ION CHEMISTRY. HIGH YIELDS OFHEAVY HYDROCARBONS FROM SOLID METHANE BY IONIZINGRADIATION AND ITS IMPLICATIONS TO THE FORMATION OF METEORICAND PLANETARY MATTER.
AD-629 368 FLD. 8/1

RADIATION CHEMISTRY
MECHANISM OF THE TRITIUM BETA-RAY INDUCED EXCHANGEREACTIONS OF DEUTERIUM WITH METHANE AND ETHANE IN THEGAS PHASE.
AD-629 697 FLD. 8/1

•MICROMINIATURIZATION(ELECTRONICS)
CIRCUITS
MICROELECTRONIC ENGINEERING. VOLUME I. FABRICATIONTECHNOLOGY.
AD-629 319 FLD. 9/1

ELECTRODES
REPRINT: GLASS-COATED TUNGSTEN MICROELECTRODES.
AD-629 393 FLD. 9/1

NEUTRISTORS
TUNNEL JUNCTION NEURISTOR.
AD-629 590 FLD. 9/1

RADIATION DAMAGE
RADIATION EFFECTS ON MICROELECTRONIC CIRCUITS (SEMICONDUCTOR).
AD-629 561 FLD. 9/1

•MICROWAVE AMPLIFIERS
PARAMETRIC AMPLIFIERS
WIDE BAND CRYOGENIC PARAMETRIC AMPLIFIER.
AD-629 599 FLD. 9/1

X BAND
LOW-NOISE, MULTIPLE-FUNCTION, X-BAND TRAVELING-WAVETUBE.
AD-629 911 FLD. 9/1

•MICROWAVE EQUIPMENT
DIELECTRICS
ZERO-CUTOFF MODE IN DIELECTRIC-LOADED COAXIAL WAVEGUIDE.
AD-629 617 FLD. 9/1

•MICROWAVE FREQUENCY
SCIENTIFIC RESEARCH
MICROWAVE RESEARCH.
AD-629 567 FLD. 20/5

•MICROWAVE RELAY SYSTEMS
DESIGN
MICROWAVE RADIO RELAY SYSTEM.
AD-629 669 FLD. 17/2

•MICROWAVES
PROPAGATION
MICROWAVE PHASE FRONT MEASUREMENTS FOR OVERWATER PATHSOF 12 AND 32 MILES.
AD-629 628 FLD. 20/14

SCATTERING
REPRINT: MICROWAVE SCATTERING DUE TO ACOUSTIC-ION-PLASMAWAVE INSTABILITY.
AD-629 396 FLD. 20/9

•MILITARY GOVERNMENT
UNITED STATES
FRANKLIN D. ROOSEVELT AND THE DEVELOPMENT OF ANAMERICAN OCCUPATION POLICY IN EUROPE.
AD-629 656 FLD. 5/4

•MILITARY LAW
OFFICER PERSONNEL
OMBUDSMAN CONCEPT AS REFLECTED IN THE INSPECTORSGENERAL, UNITED STATES ARMY AND AIR FORCE.
AD-629 648 FLD. 5/4

•MILITARY RATIONS
MEAT
COMPARISON OF TENDERNESS PARAMETERS IN DEHYDRATEDMEAT.
AD-629 306 FLD. 6/8

•MILITARY STRATEGY
DEFENSE SYSTEMS
MILITARY PROBLEMS: APPLICATION OF SYSTEMS ANALYSIS.
AD-629 463 FLD. 15/7

LANCHESTER EQUATIONS
LANCHESTER MODELS FOR PHASE II INSURGENCY.
AD-629 497 FLD. 15/7

USSR
SOVIET MILITARY THEORY: AN ADDITIONAL SOURCE OF INSIGHTINTO ITS DEVELOPMENT.
AD-629 797 FLD. 15/7

•MILLIMETER WAVES
ANTENNA ARRAYS
ELECTRONICALLY STEERABLE ARRAY: CHANGE A.
AD-629 791 FLD. 9/5

BACKWARD-WAVE OSCILLATORS
HALF MILLIMTER 'BACKWARD WAVE OSCILLATOR'.
AD-629 695 FLD. 9/1

•MIXERS(ELECTRONICS)
DIODES(SEMICONDUCTORS)
DIODE, MILLIMETER WAVE TYPE MIXER (3.2 MM).
AD-629 512 FLD. 9/5

•MOISTURE
CONTAMINATION
MOISTURE CONTAMINATION AT ALTITUDE BY BALLOON ANDASSOCIATED EQUIPMENT.
AD-629 711 FLD. 4/1

•MOLECULAR ASSOCIATION
REVIEWS
REPRINT: INTERMOLECULAR FORCES.
AD-629 831 FLD. 7/4

•MOLECULAR BEAMS
NUCLEAR SPECTROSCOPY
REPRINT: COLLISION NARROWING BY COMPARISON OF MOLECULARBEAM AND GAS-PHASE NUCLEAR RESONANCE SPECTRA.
AD-629 917 FLD. 7/4

•MOLECULAR PROPERTIES
FILMS
REPRINT: DOUBLE LAYER REPULSION AND VAN DER WAALSATTRACTION IN SOAP FILMS.
AD-629 280 FLD. 7/4

MOTION
REPRINT: CORRELATION FUNCTIONS IN NUCLEAR RELAXATION.ANALYSIS OF RANDOM MOTIONS FROM FIELD DEPENDENCE OFRELAXATION TIMES.
AD-629 352 FLD. 7/4

•MOLECULAR STRUCTURE
BOROHYDRIDES
REPRINT: ISOMERIC B20H18(-4) IONS: PREPARATION ANDREARRANGEMENT.
AD-629 391 FLD. 7/2

DIELECTRIC PROPERTIES
DIELECTRIC PROPERTIES AND THE STRUCTURE OF MATTER.
AD-629 434 FLD. 7/4

•MOLECULES
MOTION
REPRINT: DYNAMIC BIREFRINGENCE AND MECHANICAL LOSSSPECTRA OF CRYSTALLINE POLYMERS.
AD-629 382 FLD. 11/9

•MOLYBDENUM
CORROSION
KINETICS OF THE ATTACK OF MOLYBDENUM BY DISSOCIATED CHLORINE.
AD-629 943 FLD. 7/4

ELECTROCHEMISTRY
REPRINT: COULOMETRIC GENERATION OF MOLYBDENUM(V).
AD-629 348 FLD. 7/2

•MOMENTS
POLYMERS
REPRINT: SECOND AND FOURTH MOMENTS OF CHAIN MOLECULES.
AD-629 273 FLD. 7/4

•MONEY
GAME THEORY
REPRINT: UTILITY FUNCTIONS OF MONEY FOR CLEAR GAMES.
AD-629 672 FLD. 12/2

•MONOMOLECULAR FILMS
ADSORPTION
ADSORPTION OF SURFACE-ACTIVE MATERIAL AT THE SURFACE OFSEA-WATER SAMPLES FROM THE BAY OF PANAMA.
AD-629 929 FLD. 8/10

•MONOPULSE RADAR
RADAR TRACKING
REPRINT: MONOPULSE RADAR TRACKING TECHNIQUES.
AD-629 630 FLD. 17/9

•MONTE CARLO METHOD
INVENTORY CONTROL
MONTE CARLO TECHNIQUES OF SIMULATION APPLIED TO A SINGLEITEM INVENTORY SYSTEM.
AD-629 669 FLD. 9/1

•MOORING BUOYS
PROTECTIVE TREATMENTS
PROTECTION OF MOORING BUOYS. PART VII. RESULTS OF SIXTHRATING INSPECTION.
AD-629 799 FLD. 13/10

•MOSSBAUER EFFECT
CHEMICAL BONDS
REPRINT: MOSSBAUER STUDIES OF CHEMICAL BONDING.
AD-629 363 FLD. 8/1

•MOVING TARGET INDICATORS
MAN-MACHINE SYSTEMS
HUMAN VS FILTER AS DATA EXTRAPOLATOR IN A TWO-COORDINATE,SAMPLED-DATA TRACKING SYSTEM.
AD-629 499 FLD. 9/8

•MUSCLES
ALKALOIDS
REPRINT: METABOLISM OF CARNITINE IN COLD-ACCLIMATED RATS.
AD-629 795 FLD. 6/19

DISEASES
REPRINT: MYOGLOBINURIA AND PERSISTENCE OF FETAL MYOGLOBIN.
AD-629 340 FLD. 6/5

LIPIDS
REPRINT: EFFECT OF ACUTE AND CHRONIC COLD EXPOSURE ONTISSUE LIPIDS IN THE RAT.
AD-629 799 FLD. 6/19

PATHOLOGY
REPRINT: NEW EVIDENCE FOR EXCESSIVE ACCUMULATION OFZ-BAND MATERIAL IN NEMALINE MYOPATHY.
AD-629 806 FLD. 6/5

RELAXATION(PHYSIOLOGY)
MECHANISMS OF SMOOTH MUSCLE RELAXATION THROUGH THE ANODALCURRENT STIMULATION.
AD-629 739 FLD. 6/16

•MYCOBACTERIUM
DISEASES
REPRINT: ATPICAL MYCOBACTERIA AND HUMAN DISEASE-AREVIEW.
AD-629 809 FLD. 6/13

•NACELLES
MODEL TESTS
HEAVY-LIFT TIP TURBOJET ROTOR SYSTEM. WIND-TUNNELSTUDIES.
AD-629 819 FLD. 1/3

•NATIONAL DEFENSE
BOMBERS
THE B-70, A CHAPTER IN DEFENSE POLICY.
AD-629 679 FLD. 15/3

•NAVAL PERSONNEL
CLASSIFICATION
PROJECT COMPASS: A COMPUTER ASSISTED CLASSIFICATION SYSTEMFOR NAVY ENLISTED MEN.
AD-629 928 FLD. 5/9

NAVAL RESEARCH LABORATORIES
NAVAL PERSONNEL RESEARCH ACTIVITY, SAN DIEGO: ABSTRACTSOF ITS TECHNICAL REPORTS, JULY 1964-JUNE 1965.
AD-629 576 FLD. 5/9

RECRUITING
PREDICTION OF REENLISTMENT USING REGRESSION ESTIMATIONOF EVENT PROBABILITIES (REEP).
AD-629 786 FLD. 5/9

•NAVAL RESEARCH
LOGISTICS
NAVAL RESEARCH LOGISTICS QUARTERLY: SELECTED PAPERS.
AD-629 756 FLD. 15/5

MEDICAL RESEARCH
SUMMARIES OF NAVAL MEDICAL RESEARCH REPORTS.
AD-629 430 FLD. 6/5

MEDICINE
REPRINT: PUBLICATIONS OF THE NAVAL BIOLOGICAL LABORATORY,SCHOOL OF PUBLIC HEALTH, UNIVERSITY OF CALIFORNIA ANDNAVAL MEDICAL RESEARCH UNIT NO. 1, BERKELEY,CALIFORNIA.
AD-629 600 FLD. 6/5

•NAVAL RESEARCH LABORATORIES
REPORTS
NAVAL PERSONNEL RESEARCH ACTIVITY, SAN DIEGO: ABSTRACTSOF ITS TECHNICAL REPORTS, JULY 1964-JUNE 1965.
AD-629 576 FLD. 5/9

•NAVAL TRAINING
ELECTRONIC TECHNICIANS
INVESTIGATION OF THE UTILITY OF A CONVERSION CHART AS A JOBAID FOR ELECTRONICS TECHNICIANS.
AD-629 608 FLD. 5/9

OFFICER PERSONNEL
RELATIONSHIP OF OCS GRADES TO OFFICER FITNESS REPORT MARKS.
AD-629 609 FLD. 5/9

•NAVAL VESSELS(COMBATANT)
SHIP NOISE
USS OGDEN (LPD-5). NOISE LEVEL SURVEY SHIP'S SPACES.
AD-629 283 FLD. 13/10

•NAVIGATION
FLIGHT SIMULATORS
GEOGRAPHIC ORIENTATION IN AIRCRAFT PILOTS: METHODOLOGICALADVANCEMENT.
AD-629 616 FLD. 1/2

•NEOPLASMS
EYE
REPRINT: TERATOMA OF THE ORBIT: A REPORT OF TWO CASES.
AD-629 408 FLD. 6/5

LABELED SUBSTANCES
REPRINT: INCORPORATION OF TRITIATED THYMIDINE BY OCULARTUMORS IN VITRO.
AD-629 419 FLD. 6/5

•NERVE IMPULSES
NERVE CELLS
REPRINT: IMPULSES ORIGINATING IN THE REGION OF DENDRITES.
AD-629 359 FLD. 6/16

•NETWORKS
TOPOLOGY
FEEDBACK LOOPS IN STOCHASTIC NETWORKS.
AD-629 817 FLD. 12/1

•NEURISTORS
TUNNEL DIODES
TUNNEL JUNCTION NEURISTOR.
AD-629 590 FLD. 9/1

•NEUTRON BEAMS
VAN DE GRAAF GENERATORS
ELECTRON SCATTERING EXPERIMENTS; MEASUREMENT OF TRANSMISSION OF 8.3-MEV NEUTRONS PRODUCED BY A VAN DE GRAAFFGENERATOR; MAGNETIZATION CURVE OF HOLMIUM.
AD-629 298 FLD. 20/8

•NITRATES
PHOTOCHEMISTRY
REPRINT: SOLUTION PHOTOLYSIS OF ARALKYL NITRATE ESTERSKINETICS, ESR SPECTRA, AND PHOTOPRODUCTS.
AD-629 906 FLD. 8/1

•NITRIDES
DECOMPOSITION
REPRINT: VAPORIZATION CATALYSIS. THE DECOMPOSITION OFGALLIUM NITRIDE.
AD-629 389 FLD. 7/4

•NITRILES
SPECTRA(INFRARED)
REPRINT: THE PREPARATION AND INFRARED EXAMINATION OF THE2-, 3-, AND 4-CYANOPYRIDINE COMPLEXES OF COPPER(I),SILVER(I), AND GOLD(I) PERCHLORATES.
AD-629 326 FLD. 7/2

•NITROGEN
EXCITATION
REPRINT: FORMATION OF EXCITED NO AND N2 BY WALL CATALYSIS.
AD-629 802 FLD. 7/4

•NITROGEN COMPOUNDS
OXIDES
REPRINT: FORMATION OF EXCITED NO AND N2 BY WALL CATALYSIS.
AD-629 802 FLD. 7/4

OXYFLUORIDES
NEW HYPOFLUORITES CONTAINING NITROGEN.
AD-629 691 FLD. 7/2

•NOISE
SUBMARINE ENGINES
NOISE SURVEY OF ENGINE ROOMS OF U.S.S. TRINGA.
AD-629 766 FLD. 6/19

•NOISE(RADAR)
STOCHASTIC PROCESSES
DIGITAL GENERATION OF BAND-LIMITED GAUSSIAN NOISE.
AD-629 689 FLD. 9/2

•NONLINEAR DIFFERENTIAL EQUATIONS
OPERATORS(MATHEMATICS)
CLASSIFICATION AND SUPERPOSITION PRINCIPLES FOR NONLINEAROPERATORS.
AD-629 268 FLD. 12/1

PARTIAL DIFFERENTIAL EQUATIONS
PERTURBATION THEORY FOR NONLINEAR PARTIAL DIFFERENTIALEQUATIONS.
AD-629 808 FLD. 12/1

RESPONSE
RESPONSE OF A NONLINEAR DIFFERENTIAL EQUATION TO WHITERANDOM EXCITATION.

AD-629 842 FLD. 12/1

•NON-DESTRUCTIVE TESTING
SYMPOSIA
SYMPOSIUM ON PHYSICS AND NONDESTRUCTIVE TESTING, HELDAT SHERATON-DAYTON HOTEL, DAYTON, OHIO, SEPTEMBER 28-30,1965.
AD-629 982 FLD. 13/8

ULTRASONIC RADIATION
ADVANCEMENT OF ULTRASONIC TECHNIQUES USING RERADIATEDSOUND ENERGIES FOR NONDESTRUCTIVE EVALUATION OF WELDMENTS.
AD-629 262 FLD. 13/8

•NUCLEAR ENERGY LEVELS
BORON
NUCLEAR EXCITATIONS IN B10, B11, AND N14 BY INELASTICELECTRON SCATTERING AT 180 DEG.
AD-629 270 FLD. 20/8

•NUCLEAR EXPLOSION DAMAGE
ANALYSIS
MAGNITUDE AND DISTRIBUTION OF WEAPON EFFECTS; APPLICATIONTO DESIGN OF FALLOUT SHELTERS.
AD-629 370 FLD. 13/13

•NUCLEAR EXPLOSIONS
RADIATION MEASUREMENT SYSTEMS
HYDRA PROGRAM, A SHORT-RANGE TELEMETERING ROCKET FORMEASUREMENT OF UNDERWATER-NUCLEAR-BURST PLUMERADIATION.
AD-629 857 FLD. 18/9

SEISMOLOGY
SEISMIC RESULTS FOR THE UNDERGROUND NUCLEAR EXPLOSIONGNOME AS OBSERVED BY THE CALTECH NETWORK.
AD-629 547 FLD. 8/11

UNDERGROUND EXPLOSIONS
ANALYSIS OF GROUND MOTION AND CONTAINMENT.
AD-629 522 FLD. 18/3
LABORATORY DESIGN, ANALYSIS, AND FIELD CONTROL OF GROUTINGMIXTURES EMPLOYED AT A NUCLEAR TEST IN SALT.
AD-629 529 FLD. 18/3

WEATHER FORECASTING
WEATHER AND SURFACE RADIATION PREDICTION ACTIVITIES FORTHE SALMON EVENT.
AD-629 496 FLD. 18/3

•NUCLEAR MAGNETIC RESONANCE
ALKYNES
REPRINT: CARBON-13 MAGNETIC RESONANCE SPECTRA OF 1SUBSTITUTED 1-HEXYNES.
AD-629 905 FLD. 7/3

MOLECULAR STRUCTURE
REPRINT: DETERMINATION OF THE CLOSEST APPROACH OF IONS INIONIC MELTS BY MEANS OF NUCLEAR RESONANCE.
AD-629 333 FLD. 7/4

NUCLEAR SPECTROSCOPY
REPRINT: STRONG COUPLING IN NUCLEAR RESONANCE SPECTRA.PERTURBATION THEORY FOR THE EXTREME COUPLING CASE.
AD-629 359 FLD. 7/4

•NUCLEAR PHYSICS
COSMIC RAYS
USE OF COSMIC RAYS TO STUDY PHYSICS IN THE RANGE 100-1000GEV.
AD-629 518 FLD. 20/8

•NUCLEAR REACTIONS
MASS TRANSFER
REPRINT: APPLICATIONS OF THE EXACTLY SOLUBLE ONE DIMENSIONALMODEL OF TRANSFER REACTIONS.
AD-629 637 FLD. 20/8

•NUCLEAR RESONANCE
MOLECULAR BEAMS
REPRINT: COLLISION NARROWING BY COMPARISON OF MOLECULARBEAM AND GAS-PHASE NUCLEAR RESONANCE SPECTRA.
AD-629 517 FLD. 7/4

•NUCLEAR SCATTERING
ELECTRONS
ELECTRON SCATTERING EXPERIMENTS; MEASUREMENT OF TRANSMISSION OF 8.3-MEV NEUTRONS PRODUCED BY A VAN DE GRAAFFGENERATOR; MAGNETIZATION CURVE OF HOLMIUM.
AD-629 298 FLD. 20/8

•NUCLEAR SPECTROSCOPY
NUCLEAR MAGNETIC RESONANCE
REPRINT: STRONG COUPLING IN NUCLEAR RESONANCE SPECTRA.PERTURBATION THEORY FOR THE EXTREME COUPLING CASE.
AD-629 359 FLD. 7/4

•NUCLEAR SPINS
RELAXATION TIME
REPRINT: CORRELATION FUNCTIONS IN NUCLEAR RELAXATION.ANALYSIS OF RANDOM MOTIONS FROM FIELD DEPENDENCE OFRELAXATION TIMES.
AD-629 352 FLD. 7/4

•NUCLEAR STRUCTURE
CALCIUM
CHARGE DISTRIBUTIONS OF CA40 AND CA44 FROM 250 MEVELECTRON SCATTERING.
AD-629 272 FLD. 20/8

•NUCLEAR WARFARE CASUALTIES
MATHEMATICAL MODELS
SENSITIVITY ANALYSIS OF CIVIL DEFENSE SYSTEMS AND COMPONENTS. A GENERALIZED SENSITIVITY ANALYSIS OF CDSYSTEMS.
AD-629 703 FLD. 15/3

•NUCLEAR WEAPONS
RADIATION EFFECTS
MAGNITUDE AND DISTRIBUTION OF WEAPON EFFECTS; APPLICATIONTO DESIGN OF FALLOUT SHELTERS.
AD-629 370 FLD. 13/13

•NUCLEI
HARTREE-FOCK APPROXIMATION
HARTREE-FOCK CALCULATIONS OF FINITE NUCLEI.
AD-629 314 FLD. 20/8

•NUCLEIC ACIDS
BEHAVIOR
EFFECTS OF AUDITORY STIMULATION AND MOTOR ACTIVITY ONNUCLEIC ACIDS AND PROTEINS.
AD-629 528 FLD. 5/10

LEARNING
EFFECTS OF CHEMICAL STIMULATION AND LEARNING ON NUCLEICACIDS AND PROTEINS.
AD-629 708 FLD. 5/10

•NUCLEONS
POTENTIAL THEORY
REPRINT: APPLICATIONS OF THE EXACTLY SOLUBLE ONE DIMENSIONALMODEL OF TRANSFER REACTIONS.
AD-629 637 FLD. 20/8
REPRINT: SOLUBLE SEMICLASSICAL PARTICLE TRANSFER PROBLEM.
AD-629 638 FLD. 20/8

•NUCLEOPROTEINS
DEFICIENCY DISEASES
REPRINT: NUCLEOPROTEIN CHANGES IN THE INTESTINAL MUCOSA OFPATIENTS WITH TROPICAL SPRUE.
AD-629 623 FLD. 6/5

•NUCLEOSIDES
NEOPLASMS
REPRINT: INCORPORATION OF TRITIATED THYMIDINE BY OCULARTUMORS IN VITRO.
AD-629 919 FLD. 6/5

•NUMERICAL ANALYSIS
INTEGRAL EQUATIONS
REPRINT: NUMERICAL SOLUTIONS OF THE PERCUS-YEVICKEQUATION FOR THE HARD-SPHERE POTENTIAL.
AD-629 327 FLD. 20/4

INTEGRALS
RADIATION COUPLED WEDGE FLOW USING METHOD OF INTEGRALRELATIONS.
AD-629 559 FLD. 20/4

•N-BODY PROBLEM
ELEMENTARY PARTICLES
METHODS COMMON TO ELEMENTARY PARTICLE PHYSICS ANDMANY-BODY PROBLEMS.
AD-629 396 FLD. 20/8

•OBESITY
THYROXINE
REPRINT: RADIOTHYROXINE TURNOVER IN OBESITY.
AD-629 334 FLD. 6/5

•OCEAN CURRENTS
MEASUREMENT
COMPILATION OF MOORED CURRENT METER OBSERVATIONS,VOLUME I.
AD-629 815 FLD. 8/3

•OCEANOGRAPHIC VESSELS
BUOYS
FLIP FLOATING INSTRUMENT PLATFORM.
AD-629 601 FLD. 13/10

•OCEANOLOGY
INDIAN OCEAN
BIBLIOGRAPHY ON PHYSICAL OCEANOGRAPHY OF THE INDIAN OCEAN.
AD-629 466 FLD. 8/10

SCIENTIFIC RESEARCH
ATMOSPHERIC, EARTH AND OCEANOGRAPHIC RESEARCH.
AD-629 299 FLD. 4/1
OCEANIC RESEARCH.
AD-629 826 FLD. 8/10

•OFFICER PERSONNEL
AIR FORCE
PROPOSALS FOR AN ALL REGULAR OFFICER FORCE AS AN AID TOPROCUREMENT AND RETENTION OF QUALIFIED PERSONNEL IN THEUNITED STATES AIR FORCE CAREER OFFICER CORPS.
AD-629 683 FLD. 5/9

EFFECTIVENESS
RELATIONSHIP OF OCS GRADES TO OFFICER FITNESS REPORT MARKS.
AD-629 609 FLD. 5/9

•OPERATIONS RESEARCH
CIVIL DEFENSE SYSTEM
SENSITIVITY ANALYSIS OF CIVIL DEFENSE SYSTEMS AND COMPONENTS. INTRODUCTION AND SUMMARY.
AD-629 704 FLD. 15/3

CIVIL DEFENSE SYSTEMS
A SENSITIVITY ANALYSIS OF SELECTED PARAMETERS BASED ON8 SMSA'S.
AD-629 702 FLD. 15/3

COST EFFECTIVENESS
CONCEPTS AND TECHNIQUES FOR

SUMMARIZING DEFENSE SYSTEMCOSTS.
AD-624 447 FLD. 5/1

•OPERATORS(MATHEMATICS)
FUNCTIONAL ANALYSIS
CLASSIFICATION AND SUPERPOSITION PRINCIPLES FOR NONLINEAROPERATORS.
AD-624 268 FLD. 12/1

SPIN
WICK'S THEOREM FOR SPIN OPERATORS, WITH AN APPLICATIONTO SPIN WAVES IN ANTIFERROMAGNETS.
AD-624 720 FLD. 20/3

•OPHTHALMOLOGY
PROSTHETICS
REPRINT: USES OF PLASTICS IN OPHTHALMOLOGY.
AD-624 502 FLD. 6/5

•OPTICAL EQUIPMENT
GYROSCOPES
OPTICAL FLAT PLACEMENT ON ALMOST SPHERICAL GYROROTORS.
AD-624 661 FLD. 17/7

•OPTICAL GLASS
ABSORPTION SPECTRUM
ELECTROOPTICS: EXCITED STATE SATURABLE ABSORBER FOR1.06 MICRON WAVELENGTH.
AD-624 361 FLD. 20/6

•OPTICAL SCANNING
BIBLIOGRAPHIES
TRANSLATION OF RUSSIAN RESEARCH: COMPILATION OFABSTRACTS ON OPTICAL DETECTION.
AD-624 439 FLD. 20/6

•ORBITAL TRAJECTORIES
ERRORS
DOPPLER RESIDUALS: DEPENDENCE ON SATELLITE ORBIT ERRORAND STATION POSITION ERROR.
AD-624 476 FLD. 22/3

PERTURBATION THEORY
APPLICATION OF FLOQUET THEORY TO THE COMPUTATION OF SMALLORBITAL PERTURBATIONS OVER LONG TIME INTERVALS USING THETSCHAUNER-HEMPEL EQUATIONS.
AD-624 655 FLD. 22/3

•ORDNANCE LABORATORIES
NAVAL RESEARCH LABORATORIES
INSTRUMENT OPERATIONS ON THE FIRING RANGES AT NAVALORDNANCE TEST STATION.
AD-624 311 FLD. 14/2

•ORGANIC COMPOUNDS
INFORMATION RETRIEVAL
WISWESSER LINE NOTATION SYSTEM FOR CODING ORGANICCOMPOUNDS.
AD-624 525 FLD. 7/3

•ORGANIC NITROGEN COMPOUNDS
CHEMICAL REACTIONS
REPRINT: REACTION OF B10H10(-2) WITH ARYLDIAZONIUMSALTS.
AD-624 386 FLD. 7/2

PHOTOCHEMISTRY
REPRINT: SOLUTION PHOTOLYSIS OF ARALKYL NITRATE ESTERSKINETICS, ESR SPECTRA, AND PHOTOPRODUCTS.
AD-624 406 FLD. 8/1

SMOKELESS PROPELLANTS
RESEARCH IN NITROMONOMERS AND THEIR APPLICATION TOSOLID SMOKELESS PROPELLANTS.
AD-624 300 FLD. 21/9.2

•ORGANOBORANES
ELASTOMERS
CARBORANE-SILOXANE ELASTOMERS.
AD-624 735 FLD. 11/10

POLYMERS
TRANSLATION OF RUSSIAN RESEARCH: STUDY OF THE PROPERTIESAND OF THE FEASIBILITY OF USING ORGANOBOROSILICON POLYMERSAS CONSITUENTS OF HEAT-RESISTANT ADHESIVES.
AD-624 752 FLD. 11/1

SYNTHESIS(CHEMISTRY)
REPRINT: B-PHENYL-1,2- DICARBA CLOVODODECARBORANE(12)FROM B9C2H11(-2) THROUGH AN INSERTION REACTION.
AD-624 387 FLD. 7/2

•OXIDIZERS
SYNTHESIS(CHEMISTRY)
NEW HYPOFLUORITES CONTAINING NITROGEN.
AD-624 641 FLD. 7/2

•OXIDOREDUCTASES
ACCLIMATIZATION
REPRINT: TISSUE LACTIC DEHYDROGENASE ISOZYMES: VARIATIONIN RATS DURING PROLONGED COLD EXPOSURE.
AD-624 796 FLD. 6/19

BLOOD DISEASES
REPRINT: REFRACTORY HEMOLYTIC DISEASE ASSOCIATED WITHGLUCOSE-6-PHOSPHATE DEHYDROGENASE DEFICIENCY ANDHEMOSIDEROSIS: REPORT OF A CASE.
AD-624 345 FLD. 6/5

•OXYFLUORIDES
SYNTHESIS(CHEMISTRY)
NEW HYPOFLUORITES CONTAINING NITROGEN.
AD-624 641 FLD. 7/2

•OXYGEN
HEMOGLOBIN
STUDIES ON THE HEMOGLOBIN-OXYGEN EQUILIBRIUM.
AD-624 740 FLD. 6/16

PRODUCTION
EFFECT OF LIGHT INTENSITY AND THICKNESS OF CULTURE SOLUTIONON OXYGEN PRODUCTION BY ALGAE.
AD-624 532 FLD. 6/11

THERMAL RADIATION
MOLECULAR ATMOSPHERIC OXYGEN HORIZON STUDY DATA EVALUATIONSTUDY REPORT.
AD-624 615 FLD. 22/2

•OXYGEN CONSUMPTION
CLOSED ECOLOGICAL SYSTEMS
REPRINT: OBSERVATIONS ON RATS EXPOSED TO A SPACE CABIN ATMOSPHERE FOR TWO WEEKS.
AD-624 342 FLD. 6/11

HIGH ALTITUDE
OXYGEN REQUIREMENTS WITH CONSTANT FLOW EQUIPMENT.
AD-624 639 FLD. 6/17

TOXICITY
TOXIC HAZARDS RESEARCH UNIT DESIGN AND CONSTRUCTION PHASE.
AD-624 479 FLD. 14/2

•OXYGEN MASKS
AVIATION MEDICINE
OXYGEN REQUIREMENTS WITH CONSTANT FLOW EQUIPMENT.
AD-624 639 FLD. 6/17

RESPIRATION
EFFECT OF RESPIRATORY DEAD SPACE OF OXYGEN EQUIPMENT UPONOXYGEN ECONOMY.
AD-624 634 FLD. 6/17

•PACKING MATERIALS
PLASTICS
COMPOSITE PLASTIC FILMS FOR FLEXIBLE TRANSPARENT PACKAGING.
AD-624 574 FLD. 13/9

•PAIN
SENSITIVITY
EFFECT OF CONTROLLED ELECTROPHORESIS ON DEPOSITION OFFLUORIDE ON TOOTH STRUCTURE.
AD-624 680 FLD. 6/5

•PANELS(STRUCTURAL)
COMPRESSIVE PROPERTIES
BUCKLING STRENGTH OF CURVED BERYLLIUM PANELS IN COMPRESSION.
AD-624 699 FLD. 20/11

•PAPER CAPACITORS
MANUFACTURING METHODS
PRODUCTION ENGINEERING MEASURE FOR MECHANIZATION OF HIGHRELIABILITY CAPACITORS.
AD-624 515 FLD. 9/1

•PARAMETRIC AMPLIFIERS
MICROWAVE AMPLIFIERS
WIDE BAND CRYOGENIC PARAMETRIC AMPLIFIER.
AD-624 549 FLD. 9/1

•PARTICLE ACCELERATOR TECHNIQUES
COSMIC RAYS
USE OF COSMIC RAYS TO STUDY PHYSICS IN THE RANGE 100-1000GEV.
AD-624 518 FLD. 20/8

•PARTICLE ACCELERATORS
PARTICLE BEAMS
BEAM INSTABILITIES IN THE PRINCETON-STANFORD STORAGE RINGS.
AD-624 271 FLD. 20/8

•PARTICLE BEAMS
STABILITY
BEAM INSTABILITIES IN THE PRINCETON-STANFORD STORAGE RINGS.
AD-624 271 FLD. 20/8

•PARTICLE TRAJECTORIES
COLLOIDS
REPRINT: PARTICLE MOTIONS IN SHEARED SUSPENSIONS.ORIENTATIONS OF RODS AND DISKS IN HYPERBOLIC AND OTHERFLOWS.
AD-624 243 FLD. 7/4

•PASTEURELLA PESTIS
SERODIAGNOSIS
REPRINT: DETECTION OF AN ENZOOTIC PLAGUE FOCUS BYSEROLOGICAL METHODS.
AD-624 350 FLD. 6/5

•PENTANOLS
PYROLYSIS
REPRINT: PYROLYSIS STUDIES. THERMAL RETROGRADE ALDOLCONDENSATION OF BETA-HYDROXY KETONES.
AD-624 374 FLD. 7/4

•PENTANONES
PYROLYSIS
REPRINT: PYROLYSIS STUDIES. THERMAL RETROGRADE ALDOLCONDENSATION OF BETA-HYDROXY KETONES.
AD-624 374 FLD. 7/4

•PEPTIDES
SOLUTIONS
REPRINT: THERMODYNAMIC PROPERTIES OF SOLUTIONS OF HELICALPOLYPEPTIDES.
AD-624 274 FLD. 7/4

•PERITONEUM
ABSORPTION(BIOLOGICAL)
REPRINT: PERITONEAL FLUID ABSORPTION. EFFECT OFDEHYDRATION

ON KINETICS.
AD-629 349 FLD. 6/16

•PERMEABILITY(MAGNETIC)
ELECTROMAGNETIC SHIELDING
INTRODUCTORY THEORETICAL STUDY OF CONSTANT PERMEABILITYMAGNETIC SHIELDING.
AD-629 312 FLD. 20/3

•PEROXIDES
ESTERS
REPRINT: ASPECTS OF THE CHEMISTRY OF PERESTERS.
AD-629 916 FLD. 7/3

LIFE SUPPORT
POTASSIUM SUPEROXIDE ATMOSPHERE CONTROL UNIT.
AD-629 956 FLD. 6/11

•PERSONNEL MANAGEMENT
ARMY
SERGEANTS MAJOR PERSONNEL CONFERENCE.
AD-629 573 FLD. 5/9

ENGINEERING PERSONNEL
ANALYSIS OF THE SELECTION OF CANDIDATES FOR SALESENGINEERING POSITIONS.
AD-629 649 FLD. 5/9

INDUSTRIAL MEDICINE
USE OF STATISTICAL CONTROL CHART TECHNIQUES IN A SICK LEAVECONTROL PROGRAM.
AD-629 747 FLD. 5/9

•PERTURBATION THEORY
MAGNETIC PROPERTIES
WICK'S THEOREM FOR SPIN OPERATORS, WITH AN APPLICATIONTO SPIN WAVES IN ANTIFERROMAGNETS.
AD-629 720 FLD. 20/3

NONLINEAR DIFFERENTIAL EQUATIONS
PERTURBATION THEORY FOR NONLINEAR PARTIAL DIFFERENTIALEQUATIONS.
AD-629 808 FLD. 12/1

NUCLEAR MAGNETIC RESONANCE
REPRINT: STRONG COUPLING IN NUCLEAR RESONANCE SPECTRA.PERTURBATION THEORY FOR THE EXTREME COUPLING CASE.
AD-629 354 FLD. 7/4

ORBITAL TRAJECTORIES
APPLICATION OF FLOQUET THEORY TO THE COMPUTATION OF SMALLORBITAL PERTURBATIONS OVER LONG TIME INTERVALS USING THETSCHAUNER-HEMPEL EQUATIONS.
AD-629 659 FLD. 22/3

WAVE FUNCTIONS
REPRINT: PERTURBATION THEORY EXPANSIONS THROUGH 21STORDER OF THE NON-RELATIVISTIC ENERGIES OF THE TWO-ELECTRONSYSTEMS(2P)23P AND (1S)21S.
AD-629 378 FLD. 7/4

•PETROLOGY
SHEAR STRESSES
REPRINT: AN APPROXIMATE METHOD OF ESTIMATING SHEARVELOCITY FROM SPECIFIC HEAT.
AD-629 493 FLD. 8/7

•PHENOLS
CHLORINATION
REACTIONS OF CHLORINE DIOXIDE AND OTHER OXY-CHLORO COMPOUNDS WITH ORGANIC COMPOUNDS. KINETICS OF REACTIONBETWEEN CHLORINE DIOXIDE AND PHENOL.
AD-629 316 FLD. 7/3

•PHONETICS
SPEECH RECOGNITION
SPEECH ANALYSIS.
AD-629 535 FLD. 5/7

•PHOSPHORIC MONOESTER HYDROLASES
HISTOLOGICAL TECHNIQUES
REPRINT: DEMONSTRATION OF ALKALINE PHOSPHATASE IN GROSSSPECIMENS OF SMALL INTESTINE.
AD-629 351 FLD. 6/5

•PHOTOCHEMISTRY
ACRYLIC RESINS
PHOTOLYSIS OF POLY(N-BUTYL METHACRYLATE) IN VACUUM.
AD-629 303 FLD. 8/1

NITRATES
REPRINT: SOLUTION PHOTOLYSIS OF ARALKYL NITRATE ESTERSKINETICS, ESR SPECTRA, AND PHOTOPRODUCTS.
AD-629 406 FLD. 8/1

POLYMERS
PHOTODEGRADATION OF HIGH POLYMERS IN SOLUTION.SOLVENT EFFECTS IN THE PHOTOLYSIS OF POLYSTYRENE.
AD-629 593 FLD. 8/1

•PHOTOGRAPHIC IMAGES
VISUAL PERCEPTION
EVALUATION OF AN IMAGE QUALITY ENHANCEMENT TECHNIQUE.
AD-629 470 FLD. 14/5

•PHOTOGRAPHIC RECONNAISSANCE
PHOTOINTERPRETABILITY
EVALUATION OF AN IMAGE QUALITY ENHANCEMENT TECHNIQUE.
AD-629 470 FLD. 14/5

•PIEZOELECTRIC TRANSDUCERS
HYPERSONIC CHARACTERISTICS
TRANSLATION OF RUSSIAN PATENT: CONVERTER OF ELECTROMAGNETIC WAVES INTO HYPERSONIC WAVES.
AD-629 849 FLD. 20/1

•PILOTS
VISUAL ACUITY
DETECTION IN A HOMOGENEOUS VISUAL FIELD UNDER A CONDITIONOF INFINITE DEPTH OF FOCUS; DEVELOPMENT OF A TRAININGDEVICE FOR PILOTS.
AD-629 521 FLD. 5/9

•PIPES
THERMAL RADIATION
TRANSLATION OF RUSSIAN RESEARCH: DETERMINATION OFTHE OPTIMUM DIMENSIONS OF RADIATING FINS.
AD-629 850 FLD. 20/13

•PLANETARY ATMOSPHERES
ABSORPTION SPECTRUM
ABSORPTION BY CO2 BETWEEN 6600 AND 7129/CM(1.4 MICRON REGION) IN PLANETARY ATMOSPHERES.
AD-629 568 FLD. 3/3

•PLANTS(BOTANY)
PHARMACOLOGY
TRANSLATION OF RUSSIAN RESEARCH: CABBAGE THERAPY. MEDICINAL PROPERTIES OF THE PLANTS ALOE AND CALENDULA.
AD-629 589 FLD. 6/3

PUERTO RICO
INVESTIGATION OF SUGAR CANE VIGOR WITH AERIAL PHOTOGRAPHYIN PUERTO RICO.
AD-629 629 FLD. 2/4

•PLASMA GENERATORS
ELECTRIC FIELDS
ELECTROFLUID HYPERSONIC RESEARCH.
AD-629 563 FLD. 20/9
ELECTROFLUID HYPERSONIC RESEARCH.
AD-629 564 FLD. 20/9

•PLASMA MEDIUM
ELECTRICAL CONDUCTANCE
TRANSLATION OF RUSSIAN RESEARCH: CONDUCTIVITY OF PLASMAIN A TRANSVERSE MAGNETIC FIELD.
AD-629 835 FLD. 20/9

HELIUM
REPRINT: INTENSE 584-A LIGHT FROM A SIMPLE CONTINUOUSHELIUM PLASMA.
AD-629 375 FLD. 20/9

SPECTROSCOPY
EXPERIMENTAL PROGRAM.
AD-629 789 FLD. 20/9

STABILITY
REPRINT: LOW-FREQUENCY INSTABILITY OF PARTIALLY IONIZEDPLASMA.
AD-629 397 FLD. 20/9

•PLASMA OSCILLATIONS
MICROWAVES
REPRINT: MICROWAVE SCATTERING DUE TO ACOUSTIC-ION-PLASMAWAVE INSTABILITY.
AD-629 396 FLD. 20/9

TURBULENCE
ION OSCILLATIONS IN A WEAKLY TURBULENT PLASMA.
AD-629 604 FLD. 20/9

•PLASMA PHYSICS
ELECTRIC FIELDS
ELECTROHYDRODYNAMIC FLOW OVER A WAVY WALL.
AD-629 506 FLD. 20/9

ELECTROMAGNETS
RESEARCH IN HIGH TEMPERATURE PLASMAS FOR SPACE APPLICATIONS.VOLUME II. ENGINEERING.
AD-629 486 FLD. 20/9

•PLASTIC SURGERY
IMPLANTS
REPRINT: PRINCIPLES OF POLYMER IMPLANT APPLICATIONS.
AD-629 621 FLD. 6/5

•PLASTICITY
BUCKLING(MECHANICS)
EFFECTS OF PLASTICITY ON THE BUCKLING AND POSTBUCKLINGOF CIRCULAR CYLINDRICAL SHELLS.
AD-629 660 FLD. 20/13

•PLASTICS
PROSTHETICS
REPRINT: USES OF PLASTICS IN OPHTHALMOLOGY.
AD-629 502 FLD. 6/5

PURIFICATION
REPRINT: STERILIZATION OF POLYMERS USED IN MEDICINE.
AD-629 504 FLD. 6/12

STRUCTURAL PROPERTIES
TRANSLATION OF WEST GERMAN RESEARCH. BASES FOR THEDESIGN OF DEFINITIVELY STRESSED CONSTRUCTION ELEMENTS MADEOF SYNTHETICS.
AD-629 432 FLD. 11/9

•POISONS
ANIMALS
PARALYZING ANIMAL POISONS.
AD-629 456 FLD. 6/3

•POLAR ORBIT TRAJECTORIES
AREA COVERAGE

PARAMETRIC PRESENTATION OF COVERAGE DATA FOR POLARVEHICLES.
AD-624 632 FLD. 22/3

•POLAROGRAPHIC ANALYSIS
ORGANIC SOLVENTS
REPRINT: REVIEW OF FUNDAMENTALS OF POLAROGRAPHY IN INERTORGANIC SOLVENTS.
AD-624 330 FLD. 7/4

•POLITICAL SCIENCE
MATHEMATICAL MODELS
MATHEMATICAL DECISION MAKING APPROACH TO THE CONTROLOF INTERNATIONAL CONFLICT.
AD-624 650 FLD. 5/4

•POLYCYCLIC COMPOUNDS
BROMINE COMPOUNDS
REPRINT: THE BROMOPYRENES AND THE AMINOPYRENESDERIVED THEREFROM.
AD-624 329 FLD. 7/3

NUCLEAR MAGNETIC RESONANCE
REPRINT: BRIDGED POLYCYCLIC COMPOUNDS. THE PROTONMAGNETIC RESONANCE SPECTRA OF SOME DIBENZOBICYCLO/3.2.1/OCTADIENES.
AD-624 373 FLD. 7/3

•POLYMERIZATION
RADIATION CHEMISTRY
REPRINT: POSITIVE-ION CHEMISTRY. HIGH YIELDS OFHEAVY HYDROCARBONS FROM SOLID METHANE BY IONIZINGRADIATION AND ITS IMPLICATIONS TO THE FORMATION OF METEORICAND PLANETARY MATTER.
AD-624 368 FLD. 8/1

•POLYMERS
CHROMATOGRAPHIC ANALYSIS
TRANSLATION OF CZECHOSLOVAKIAN RESEARCH. PYROLYTIC CELLFOR THE CHROMATOGRAPHIC STUDY OF POLYMERS.
AD-624 841 FLD. 14/2

CRYSTAL STRUCTURE
REPRINT: DYNAMIC BIREFRINGENCE AND MECHANICAL LOSSSPECTRA OF CRYSTALLINE POLYMERS.
AD-624 382 FLD. 11/9

METALORGANIC COMPOUNDS
TRANSLATION OF RUSSIAN RESEARCH: SYNTHESIS ANDPROPERTIES OF ORGANOELEMENTAL POLYMERS WITH SILICON,GERMANIUM, AND TIN IN THE CHAIN.
AD-624 725 FLD. 7/3

MOMENTS
REPRINT: SECOND AND FOURTH MOMENTS OF CHAIN MOLECULES.
AD-624 273 FLD. 7/4

ORGANOBORANES
TRANSLATION OF RUSSIAN RESEARCH: STUDY OF THE PROPERTIESAND OF THE FEASIBILITY OF USING ORGANOBOROSILICON POLYMERSAS CONSITUENTS OF HEAT-RESISTANT ADHESIVES.
AD-624 752 FLD. 11/1

PERMEABILITY
REPRINT: PERMEABILITIES OF POLYMERS AND THEIR MEDICALAPPLICATIONS: CORNEAL POLYMER IMPLANTS.
AD-624 903 FLD. 6/5

PHOTOCHEMISTRY
PHOTODEGRADATION OF HIGH POLYMERS IN SOLUTION.SOLVENT EFFECTS IN THE PHOTOLYSIS OF POLYSTYRENE.
AD-624 593 FLD. 8/1

PURIFICATION
REPRINT: STERILIZATION OF POLYMERS USED IN MEDICINE.
AD-624 504 FLD. 6/12

SILOXANES
SIB POLYMER DEVELOPMENT.
AD-624 544 FLD. 11/10

VISCOSITY
NON-NEWTONIAN FLOW OF SOLUTIONS OF HIGH MOLECULAR WEIGHTPOLYMER IN EXTREMELY VISCOUS SOLVENTS.
AD-624 712 FLD. 7/4

•POSITION FINDING
UNDERWATER SOUND EQUIPMENT
UNDERWATER ACOUSTIC RAY SHIP POSITIONING AND TRACKINGSYSTEM.
AD-624 454 FLD. 17/7

•POTASSIUM COMPOUNDS
PEROXIDES
POTASSIUM SUPEROXIDE ATMOSPHERE CONTROL UNIT.
AD-624 556 FLD. 6/11

•POTENTIAL ENERGY
MASS-ENERGY RELATION
REPRINT: ACTUAL MASS OF POTENTIAL ENERGY, CORRECTIONTO CLASSICAL RELATIVITY.
AD-624 417 FLD. 20/10
REPRINT: ACTUAL MASS OF POTENTIAL ENERGY.
AD-624 418 FLD. 20/10

•POTENTIAL THEORY
SPHERES
REPRINT: NUMERICAL SOLUTIONS OF THE PERCUS-YEVICKEQUATION FOR THE HARD-SPHERE POTENTIAL.
AD-624 327 FLD. 20/4

•POWER EQUIPMENT
SPACE STATIONS
ELECTRICAL POWER SYSTEMS FOR THE MANNED ORBITING LABORATORY.
AD-624 668 FLD. 22/2

•POWER SUPPLIES
MICROMINIATURIZATION(ELECTRONICS)
MICROELECTRONIC POWER SUPPLIES.
AD-624 838 FLD. 10/2

•PRESSURE BREATHING
SPACE SIMULATION CHAMBERS
REPRINT: OBSERVATIONS ON RATS EXPOSED TO A SPACE CABIN ATMOSPHERE FOR TWO WEEKS.
AD-624 342 FLD. 6/11

•PROBABILITY
STATISTICAL ANALYSIS
FIRST PASSAGE TIMES AND OTHER ANALYSIS OF CONTINUOUSPARAMETER MARKOV CHAINS.
AD-624 498 FLD. 12/1

STATISTICAL PROCESSES
SIMPLE APPROACH TO THE ZERO-CROSSING PROBLEM.
AD-624 269 FLD. 12/1

•PROBLEM SOLVING
GROUP DYNAMICS
PERT INFLUENCED REFLECTIVE THINKING APPROACH TO PROBLEMSOLVING DISCUSSION.
AD-624 670 FLD. 5/10

•PRODUCTION CONTROL
OPTIMIZATION
REPRINT: SURVEILLANCE PROBLEMS: WIENER PROCESSES.
AD-624 673 FLD. 12/2

•PROFESSIONAL PERSONNEL
SELECTION
HIRING THE TECHNICAL EDITOR. THE PROSPECTIVE EMPLOYER'SVIEWPOINT.
AD-624 449 FLD. 5/9

•PROGRAMMING(COMPUTERS)
ALGORITHMS
TRANSLATION OF RUSSIAN RESEARCH: AUTOMATIC CONSTRUCTIONOF COMPUTATIONAL ALGORITHMS.
AD-624 829 FLD. 9/2

AUTOMATION
TRANSLATION OF RUSSIAN RESEARCH: A SYSTEM FORPROGRAMMING AUTOMATION.
AD-624 726 FLD. 9/2
TRANSLATION OF RUSSIAN RESEARCH: POLIZ-63 INTERPRETER.
AD-624 727 FLD. 9/2

DOCUMENTATION
DOCUMENTATION FOR COMPUTER PROGRAMMING: STANDARDS ANDSPECIFICATIONS.
AD-624 521 FLD. 9/2

INSTRUCTION MANUALS
SYSTRAN (SYSTEMS ANALYSIS TRANSLATOR): A DIGITALCOMPUTER PROGRAM.
AD-624 468 FLD. 9/2

MATHEMATICAL PREDICTION
HYBRID COMPUTATION OF TRANSIENT RADIATION EFFECTS ONELECTRONICS.
AD-624 559 FLD. 18/8

•PROPULSION
COSTS
IMPACT OF THE HIGH DEVELOPMENT COST OF ADVANCED FLIGHTPROPULSION SYSTEMS ON DEVELOPMENT POLICY.
AD-624 856 FLD. 5/1

•PROSTHETICS
PLASTICS
REPRINT: USES OF PLASTICS IN OPHTHALMOLOGY.
AD-624 502 FLD. 6/5

•PROTEINS
MUSCLES
REPRINT: MYOGLOBINURIA AND PERSISTENCE OF FETAL MYOGLOBIN.
AD-624 340 FLD. 6/5

•PROTON BOMBARDMENT
IONIZATION
REPRINT: IONIZATION OF INERT GAS ATOMS BY ELECTRON ANDPROTON IMPACT AT HIGH ENERGIES.
AD-624 277 FLD. 20/8

•PROTON CAPTURE
TRITONS
REPRINT: 0 DEGREE YIELD OF GAMMA RAYS IN THE T(P, GAMMA)4 HE REACTION.
AD-624 631 FLD. 20/8

•PROTON SCATTERING
NUCLEI
QUASI-FREE PROTON SCATTERING IN LIGHT NUCLEI AT 460 MEV.
AD-624 318 FLD. 20/8

•PSYCHOMETRICS
CIVILIAN PERSONNEL
DEVELOPMENT OF A NON-VERBAL LEARNING ABILITY TEST FORNON-U.S. CITIZEN PERSONNEL OVERSEAS.
AD-624 692 FLD. 5/9

PSYCHOPHYSIOLOGY
METHODOLOGICAL PROBLEMS OF THE PSYCHOPHYSICAL METHODSOF LIMITS AND CONSTANT STIMULI.
AD-624 492 FLD. 5/10

•PSYCHOPHYSIOLOGY
MATHEMATICAL MODELS
METHODOLOGICAL PROBLEMS OF THE PSYCHOPHYSICAL METHODSOF LIMITS AND CONSTANT STIMULI.

AD-629 452 FLD. 5/10

NUCLEIC ACIDS
EFFECTS OF AUDITORY STIMULATION ANu MOTOR ACTIVITY ONNUCLEIC ACIDS AND PROTEINS.
AD-629 928 FLD. 5/10
EFFECTS OF CHEMICAL STIMULATION AND LEARNING ON NUCLEICACIDS AND PROTEINS.
AD-629 709 FLD. 5/10

•PUBLIC HEALTH
COST EFFECTIVENESS
COST/BENEFIT ANALYSIS IN HEALTH.
AD-629 778 FLD. 14/1

MEDICAL RESEARCH
REPRINT: PUBLICATIONS OF THE NAVAL BIOLOGICAL LABORATORY,SCHOOL OF PUBLIC HEALTH, UNIVERSITY OF CALIFORNIA ANDNAVAL MEDICAL RESEARCH UNIT NO. 1, BERKELEY,CALIFORNIA.
AD-629 600 FLD. 6/5

•PULSE RATE
TEMPERATURE
EFFECTS OF ENVIRONMENTAL TEMPERATURE CHANGES ON THE EKGOF THE SQUIRREL MONKEY (SAIMIRI SCIUREUS).
AD-629 527 FLD. 6/6

•PUMPS
MODEL TESTS
INVESTIGATION AND ANALYSIS OF THE PERFORMANCE CHARACTERISTICSAND FLOW CIRCULATION IN A TEST MODEL REGENERATIVE PUMP.
AD-629 692 FLD. 13/11

•PYRIDINES
COMPLEX COMPOUNDS
REPRINT: THE THERMAL DISSOCIATION OF SOME BIS AND TETRAKIS(PYRIDINE) METAL COMPLEXES.
AD-629 332 FLD. 7/2

HETEROCYCLIC COMPOUNDS
REPRINT: FLUORINATED NITROGEN HETEROCYCLES VIACYCLIZATION. TRIFLUOROMETHYL-2-PYRIDONES FROM FLUORINATED1,3-DICARBONYLS AND CYANOACETAMIDE.
AD-629 699 FLD. 7/3

SPECTRA(INFRARED)
REPRINT: THE PREPARATION AND INFRARED EXAMINATION OF THE2-, 3-, AND 4-CYANOPYRIDINE COMPLEXES OF COPPER(I),SILVER(I), AND GOLD(I) PERCHLORATES.
AD-629 326 FLD. 7/2

•PYROLYSIS
REACTION KINETICS
REPRINT: PYROLYSIS STUDIES. THERMAL RETROGRADE ALDOLCONDENSATION OF BETA-HYDROXY KETONES.
AD-629 379 FLD. 7/4

TEST EQUIPMENT
TRANSLATION OF CZECHOSLOVAKIAN RESEARCH. PYROLYTIC CELLFOR THE CHROMATOGRAPHIC STUDY OF POLYMERS.
AD-629 841 FLD. 14/2

•PYROTECHNICS
REVIEWS
APPLICATIONS OF PYROTECHNICS TO SMALL ARMS AMMUNITIONAND MILD DETONATING FUSE SYSTEMS.
AD-629 607 FLD. 19/1

•QUADRATIC PROGRAMMING
GRAPHICS
SUBDIRECT DECONPOSITIONS OF TRANSITION GRAPHS.
AD-629 577 FLD. 12/2

•QUARTZ
RESONATORS
PEM FOR FILTER, QUARTZ CRYSTAL, 112MC, TYPE EL-FR (X-2)AND CRYSTAL UNIT, FILTER, QUARTZ TYPES CR-(XM-69)/U ANDCR-(XM-69)/U.
AD-629 309 FLD. 9/1

•QUARTZ RESONATORS
VERY HIGH FREQUENCY
PEM FOR FILTER, QUARTZ CRYSTAL, 112 MC, TYPE EL-FR (X-2)AND CRYSTAL UNIT, FILTER, QUARTZ TYPES CR-(XM-69)/U ANDCR-(XM-69)/U.
AD-629 692 FLD. 9/9

•RADAR ANTENNAS
ANTENNA RADIATION PATTERNS
A BEAM-SHIFTING TECHNIQUE FOR SIDE LOBE REDUCTION ANDPATTERN SYNTHESIS.
AD-629 609 FLD. 20/14

•RADAR ECHO AREAS
IONIZATION TRAILS
RADAR SCATTERING FROM SATELLITE WAKES.
AD-629 990 FLD. 17/9

NUMERICAL ANALYSIS
SOURCE DISTRIBUTION TECHNIQUE FOR THE SOLUTION OF GENERALELECTROMAGNETIC SCATTERING PROBLEMS. PHASE I REPORT.
AD-629 586 FLD. 17/9

•RADAR INTERFERENCE
LUNAR CRAFT
RADAR INTERFERENCE EFFECTS IN THE LEM DESCENT ENGINEEXHAUST PLUME. CHEMI-IONIZATION IN THE LEM PROPELLANTSYSTEM. PREDICTION OF REFRACTION AND ATTENUATION OF THE LEMRADAR BEAMS.
AD-629 981 FLD. 22/1

•RADAR TRACKING
MONOPULSE RADAR
REPRINT: MONOPULSE RADAR TRACKING TECHNIQUES.
AD-629 670 FLD. 17/9

•RADIATION CHEMISTRY
HYDROCARBONS
REPRINT: POSITIVE-ION CHEMISTRY. HIGH YIELDS OFHEAVY HYDROCARBONS FROM SOLID METHANE BY IONIZINGRADIATION AND ITS IMPLICATIONS TO THE FORMATION OF METEORICAND PLANETARY MATTER.
AD-629 368 FLD. 8/1

REVIEWS
REPRINT: THIRTY YEARS OF ATOMIC CHEMISTRY - A REVIEW.
AD-629 369 FLD. 8/1

•RADIATION DAMAGE
ABSTRACTS
RADIATION EFFECTS INFORMATION CENTER MONTHLY ACCESSIONLIST, ABSTRACT NO. 29825 TO 29870, PART I, NOVEMBER 1,1969 TO NOVEMBER 30, 1969.
AD-629 788 FLD. 18/8

LUBRICANTS
TRANSLATION OF RUSSIAN RESEARCH: RADIATION STABILITY OFLUBRICANTS.
AD-629 790 FLD. 11/8

MATERIALS
RADIATION EFFECTS INFORMATION CENTER MONTHLY ACCESSIONLIST. COORDINATE INDEX, PART II, OCTOBER 1, 1969 TONOVEMBER 30, 1969.
AD-629 787 FLD. 18/8

MATHEMATICAL PREDICTIONS
HYBRID COMPUTATION OF TRANSIENT RADIATION EFFECTS ONELECTRONICS.
AD-629 559 FLD. 18/8

SEMICONDUCTOR DEVICES
SEMICONDUCTOR DESIGN EFFECTS ON RADIATION RESISTANCE.
AD-629 909 FLD. 18/8

SEMICONDUCTORS
RADIATION EFFECTS ON MICROELECTRONIC CIRCUITS (SEMICONDUCTOR).
AD-629 561 FLD. 9/1

•RADIATION EFFECTS
ANALYSIS
MAGNITUDE AND DISTRIBUTION OF WEAPON EFFECTS; APPLICATIONTO DESIGN OF FALLOUT SHELTERS.
AD-629 370 FLD. 13/13

CANCER
REPRINT: POSTIRRADIATION SARCOMAS OF THE UTERUS.
AD-629 259 FLD. 6/5

TRANSPLANTATION
HOMOGRAFT RESPONSE AND HEMAGGLUTININ PRODUCTION BYSENSITIZED THYMECTOMIZED IRRADIATED ADULT MICE.
AD-629 989 FLD. 6/18

•RADIATION MEASUREMENT SYSTEMS
LABORATORY EQUIPMENT
GEIGER-MULLER SURVEY METER WITH ADDED RANGE AND SAFETY.
AD-629 599 FLD. 18/9

•RADIATION MEASXREMENT SYSTEMS
NUCLEAR EXPLOSIONS
HYDRA PROGRAM, A SHORT-RANGE TELEMETERING ROCKET FORMEASUREMENT OF UNDERWATER-NUCLEAR-BURST PLUMERADIATION.
AD-629 897 FLD. 18/9

•RADIO COMMUNICATION SYSTEMS
IONOSPHERIC PROPAGATION
MEASUREMENT OF IONOSPHERIC EFFECTS ON CURTS (COMMONUSER RADIO TRANSMISSION SOUNDING) SOUNDER/COMMUNICATIONS TERMINAL SEPARATIONS.
AD-629 253 FLD. 20/14

•RADIO FIELDS
MEASURING DEVICES (ELECTRICAL + ELECT
FIELD STRENGTH MEASUREMENTS.
AD-629 950 FLD. 14/2

•RADIO RECEIVERS
SOUNDING ROCKETS
DESIGN OF AN IMPROVED RECEIVER FOR ROCKET EXPERIMENTS.
AD-629 654 FLD. 17/2

•RADIO TRANSMISSION
POLAR REGIONS
TRANSLATION OF RUSSIAN PATENT: METHOD OF SHORT-WAVE RADIOCOMMUNICATION THROUGH THE POLAR ZONE.
AD-629 899 FLD. 17/2.1

SOUTHEAST ASIA
SEACORE, SOUTHEAST ASIA COMMUNICATIONS RESEARCH.
AD-629 710 FLD. 17/2.1

•RADIO WAVES
IONOSPHERIC PROPAGATION
MEASUREMENT OF PHASE AND AMPLITUDE RADIO WAVE INTERACTION AT UNIVERSITY PARK, PENNSYLVANIA, FOR APRIL-MAYJUNE, 1969.
AD-629 393 FLD. 4/1

PROPAGATION
MICROWAVE PHASE FRONT MEASUREMENTS FOR OVERWATER PATHSOF 12 AND 32 MILES.

AD-629 628 FLD. 20/14

•RADIOACTIVE BATTERIES
POWER SUPPLIES
RADIOISOTOPIC POWER SUPPLY FOR THE SUNBLAZER SPACE PROBE.
AD-629 689 FLD. 10/14

•RADIOACTIVE FALLOUT
AIR POLLUTION
SAMPLING PROGRAM FOR AIRBORN RADIOACTIVITY.
AD-629 916 FLD. 18/9

•RADIOACTIVE ISOTOPES
BROMINE
REPRINT: NATURE OF THE CHEMICAL REACTIVITY OF RADIOBROMINEATOMS PRODUCED BY ISOMERIC TRANSITION.
AD-629 366 FLD. 8/1

•RADIOACTIVITY
SAMPLETS
SAMPLING PROGRAM FOR AIRBORN RADIOACTIVITY.
AD-629 916 FLD. 18/9

•RADIOCHEMISTRY
REVIEWS
REPRINT: THIRTY YEARS OF ATOMIC CHEMISTRY - A REVIEW.
AD-629 369 FLD. 8/1

•RADIOFREQUENCY FILTERS
BAND-PASS FILTERS
WIDEBAND ELECTRONICALLY TUNABLE FILTERS FOR VHF-UHFBAND.
AD-629 360 FLD. 9/1

•RADIOLOGICAL DOSAGE
MATHEMATICAL MODELS
SENSITIVITY ANALYSIS OF CIVIL DEFENSE SYSTEMS AND COMPONENTS. A GENERALIZED SENSITIVITY ANALYSIS OF COSYSTEMS.
AD-629 703 FLD. 19/3

•RADIOSONDES
TEMPERATURE SENSITIVE ELEMENTS
IMPROVEMENT IN ACCURACY OF THE ML-419 RADIOSONDETEMPERATURE ELEMENT FOR HEIGHTS ABOVE 90,000 FEETAND UP TO 190,000 FEET.
AD-629 859 FLD. 4/1

•RAILROADS
ACCIDENTS
REPRINT: A STATISTICAL STUDY OF THE DERAILMENT HAZARDFOR U. S. CLASS I RAILWAYS.
AD-629 679 FLD. 12/2

•RAMAN SPECTROSCOPY
EMISSIVITY
CONTINUOUS-WAVE STIMULATED RAMAN EMISSION.
AD-629 301 FLD. 20/6

•RARE EARTH COMPOUNDS
MAGNETIC PROPERTIES
REPRINT: PREPARATION AND PARAMAGNETISM OF THE RARE EARTHTRIFLUORIDES.
AD-629 722 FLD. 7/2

•REASONING
LOGISTICS
HUMAN JUDGMENT AS A FACTOR IN THE GENERATION OF SHIPS'ALLOWANCE LISTS.
AD-629 993 FLD. 15/5

•RECRUITING
MATHEMATICAL PREDICTION
PREDICTION OF REENLISTMENT USING REGRESSION ESTIMATIONOF EVENT PROBABILITIES (REEP).
AD-629 786 FLD. 5/9

•RECTIFIERS
MANUFACTURING METHODS
PRODUCT ENGINEERING MEASURE FOR THE IMPROVEMENT OFPRODUCTION TECHNIQUES TO INCREASE THE RELIABILITY AND TOIMPROVE PRODUCT CAPABILITY OF HIGH VOLTAGE MINIATURESILICON RECTIFIERS.
AD-629 858 FLD. 9/1

SILICON
PRODUCTION ENGINEERING MEASURE. HIGH VOLTAGE SILICONRECTIFIER STACKS.
AD-629 983 FLD. 9/1

•REENTRY VEHICLES
STABILITY
EFFECTS OF MASS-TRANSFER ON THE DYNAMIC STABILITY OFSLENDER CONES.
AD-629 933 FLD. 20/4

•REFLECTOMETERS
INFRARED RADIATION
OPTICAL SURFACE DISCRIMINATOR DESIGNED FOR DISCRIMINATINGBETWEEN REFLECTING AND NONREFLECTING SURFACES FOR OPTICALRADIATION IN THE NEAR INFRARED.
AD-629 286 FLD. 20/6

•REFRACTION
POLYMERS
REPRINT: DYNAMIC BIREFRINGENCE AND MECHANICAL LOSSSPECTRA OF CRYSTALLINE POLYMERS.
AD-629 382 FLD. 11/9

•REFRACTIVE INDEX
ERRORS
REPRINT: ERROR IN DIELECTRIC-FILM ELLIPSOMETER DETERMINATIONS DUE TO NEGLECT OF FILM ABSORPTION.
AD-629 341 FLD. 20/6

•REFUGEES
EVACUATION
DISPLACEMENT OF PEOPLE: SOCIAL AND PSYCHOLOGICAL PROBLEMS.
AD-629 519 FLD. 5/11

•REINFORCED CONCRETE
COMPRESSIVE PROPERTIES
DYNAMIC COMPRESSION TESTS ON THIN-SECTION REINFORCEDCONCRETE.
AD-629 770 FLD. 13/3

•RELIABILITY(ELECTRONICS)
SOLID STATE PHYSICS
RADC RELIABILITY PHYSICS NOTEBOOK.
AD-629 769 FLD. 14/4

•RENDEZVOUS GUIDANCE
DISPLAY SYSTEMS
INVESTIGATION OF 'PREDICTOR' DISPLAYS FOR ORBITAL RENDEZVOUS, PROGRAM SUMMARY.
AD-629 967 FLD. 22/3

•RENDEZVOUS TRAJECTORIES
ORBITAL TRAJECTORIES
INVESTIGATION OF 'PREDICTOR' DISPLAYS FOR ORBITAL RENDEZVOUS, PROGRAM SUMMARY.
AD-629 967 FLD. 22/3

•REPORTS
PREPARATION
HIRING THE TECHNICAL EDITOR. THE PROSPECTIVE EMPLOYER'SVIEWPOINT.
AD-629 499 FLD. 5/9

READING
TECHNICAL REPORTS FOR QUICK READER COMPREHENSION.
AD-629 498 FLD. 5/2

•REPTILES
MARINE BIOLOGY
TRANSLATION OF RUSSIAN REPORT: SEA SNAKES.
AD-629 690 FLD. 8

•RESISTANCE(ELECTRICAL)
IRON ALLOYS
REPRINT: HALL EFFECTS, RESISTIVITY, AND THERMOPOWER IN FEAND FE(1-X)NI(X) FOR X=0 TO 0.2.
AD-629 381 FLD. 20/3

•RESISTORS
SEMICONDUCTOR DEVICES
ION IMPLANTATION DOPING TECHNIQUES.
AD-629 949 FLD. 20/12

•RESPIRATION
STRESS(PHYSIOLOGY)
MAXIMUM VOLUNTARY VENTILATION AFTER G SUB X IMPACTIN HUMANS.
AD-629 626 FLD. 6/19

•RESPIRATORY DISEASES
AIR POLLUTION
RESPIRATORY DISEASES DUE TO AIR POLLUTION ON TOKYOYOKOHAMA AREA.
AD-629 791 FLD. 6/5

•RESPIRATORY SYSTEM
ANOXIA
CARDIO-RESPIRATORY EVENTS IN FATAL ANOXIA.
AD-629 639 FLD. 6/19

CLOSED ECOLOGICAL SYSTEMS
STUDIES OF CILIARY MUCUS TRANSPORT IN A CLOSED CABINATMOSPHERE.
AD-629 759 FLD. 6/11

•RETINA
VIBRATION
RESPONSE OF A SIMULATED DETACHED RETINA TO VARIOUSDYNAMIC FORCES.
AD-629 662 FLD. 6/5

•REVIEWS
WET CELLS
REVIEW OF RECENTLY DEVELOPED LIQUID AMMONIA BATTERIES.
AD-629 768 FLD. 10/3

•ROCKET MOTORS(SOLID PROPELLANT)
VIBRATION
THICKNESS SHEAR VIBRATIONS OF AN ABLATING ROCKET.
AD-629 737 FLD. 21/8.2

•ROCKET PROPELLANTS
COMBUSTION
FEASIBILITY STUDY TO INCREASE THE ACTIVITY OF OXIDES WITHOXYGEN AND TO LOWER THE IGNITION TEMPERATURE OF SLURRYMETALS.
AD-629 940 FLD. 21/9.2

•ROTOR BLADES(ROTARY WINGS)
AERODYNAMIC CHARACTERISTICS
HEAVY-LIFT TIP TURBOJET ROTOR SYSTEM. DYNAMIC ANDAEROELASTIC STUDIES.
AD-629 764 FLD. 1/3

DESIGN
HEAVY-LIFT TURBOJET ROTOR SYSTEM. DESIGN LAYOUT STUDIES.
AD-629 762 FLD. 1/3

MODEL TESTS
HEAVY-LIFT TIP TURBOJET ROTOR SYSTEM. WIND-TUNNELSTUDIES.
AD-629 819 FLD. 1/3

•SADDLE POINT METHOD
SPHERES
DESCENT OF THE BOUNDARY OF A SPHERE.
AD-629 749 FLD. 12/1

•SAFETY HARNESS
OPTIMIZATION
PERSONNEL RESTRAINT AND SUPPORT

SYSTEM DYNAMICS.
AD-629 487 FLD. 6/2

•SALMONELLA
GENETICS
REPRINT: GENETIC MAPPING OF VI AND SOMATIC ANTIGENICDETERMINANTS IN SALMONELLA.
AD-629 483 FLD. 6/13
GENETIC ANALYSIS OF MICROORGANISM BY MIXED INFECTIONOF ACTIVE PHAGE PARTICLES AND PHAGE OR BACTERIAL DNA.
AD-629 749 FLD. 6/13

•SAMPLERS
RADIATION MEASUREMENT SYSTEMS
SAMPLING PROGRAM FOR AIRBORN RADIOACTIVITY.
AD-629 516 FLD. 18/9

•SAMPLING
ECONOMICS
NONLINEAR SIMULTANEOUS EQUATIONS: ESTIMATION ANDPREDICTION.
AD-629 284 FLD. 9/3

METEOROLOGICAL PARAMETERS
SAMPLING AND DIGITIZING OF METEOROLOGICAL DATA.
AD-629 627 FLD. 4/2

•SATELLITE ATTITUDE
MAGNETIC GUIDANCE
PASSIVE SYSTEM FOR DETERMINING THE ATTITUDE OF ASATELLITE.
AD-629 479 FLD. 22/1

•SATELLITE NETWORKS
COMMUNICATION SYSTEMS
SATELLITE COMMUNICATION CONTROL FACILITY.
AD-629 643 FLD. 17/2.1

•SATELLITE TRACKING SYSTEM
OPERATIONS RESEARCH
SOME THOUGHTS ON RANGE PLANNING AND OPERATION.
AD-629 523 FLD. 22/9

•SATELLITES(ARTIFICIAL)
CELESTIAL MECHANICS
NON-ZONAL HARMONIC COEFFICIENTS OF THE GEOPOTENTIAL FROMSATELLITE DOPPLER DATA.
AD-629 479 FLD. 8/9

IONIZATION TRAILS
RADAR SCATTERING FROM SATELLITE WAKES.
AD-629 490 FLD. 17/9

ORBITAL TRAJECTORIES
DOPPLER RESIDUALS: DEPENDENCE ON SATELLITE ORBIT ERRORAND STATION POSITION ERROR.
AD-629 476 FLD. 22/3

SPIN STABILIZATION
LINCOLN EXPERIMENTAL SATELLITE SPIN AXIS ORIENTATIONSYSTEM.
AD-629 398 FLD. 22/2

STABILIZATION SYSTEMS
DIRECTIONAL EQUILIBRIUM OF AN ARTIFICIAL SATELLITEENVELOPING A NONUNIFORM REGION OF A GRAVITATIONAL FIELD.
AD-629 992 FLD. 22/2

•SCANDIUM COMPOUNDS
OXIDES
ABSORPTION EDGE SPECTRUM OF SCANDIUM OXIDE.
AD-629 939 FLD. 7/4

•SCANNING
FIBER OPTICS
CONTINUOUS FACSIMILE SCANNER EMPLOYING FIBER OPTICS.
AD-629 696 FLD. 17/2

•SCHEDULING
NETWORKS
FEEDBACK LOOPS IN STOCHASTIC NETWORKS.
AD-629 817 FLD. 12/1

•SCIENTIFIC PERSONNEL
SEISMOLOGY
SEISMOLOGY: INTERNATIONAL COOPERATION BETWEEN THE SEISMOLOGISTS OF JAPAN, ENGLAND, DENMARK, AND THE UNITEDSTATES.
AD-629 493 FLD. 8/11

•SEA WATER
SURFACE-ACTIVE SUBSTANCES
ADSORPTION OF SURFACE-ACTIVE MATERIAL AT THE SURFACE OFSEA-WATER SAMPLES FROM THE BAY OF PANAMA.
AD-629 429 FLD. 8/10

VISCOSITY
EFFECT OF SODIUM CHLORIDE ADDITION ON THE VISCOSITY OFWATER UNDER PRESSURE.
AD-629 291 FLD. 7/9

•SECONDARY FLOW
VORTICES
SECONDARY FLOW IN A VISCOUS VORTEX.
AD-629 580 FLD. 20/4

•SEISMOLOGY
LITHOSPHERE
DETERMINATION OF CRUSTAL THICKNESS FROM THE SPECTRUM OFP WAVES.
AD-629 844 FLD. 8/7

NUCLEAR EXPLOSIONS
SEISMIC RESULTS FOR THE UNDERGROUND NUCLEAR EXPLOSIONGNOME AS OBSERVED BY THE CALTECH NETWORK.
AD-629 997 FLD. 8/11

SCIENTIFIC PERSONNEL
SEISMOLOGY: INTERNATIONAL COOPERATION BETWEEN THE SEISMOLOGISTS OF JAPAN, ENGLAND, DENMARK, AND THE UNITEDSTATES.
AD-629 493 FLD. 8/11

WISCONSIN
CRUSTAL STRUCTURE IN THE WISCONSIN AREA.
AD-629 629 FLD. 8/11

•SELENIUM COMPOUNDS
NUCLEAR SPECTROSCOPY
NUCLEAR MAGNETIC RESONANCE SPECTROSCOPY OF SOME SELENIUMCOMPOUNDS.
AD-629 331 FLD. 7/4

•SEMICIRCULAR CANALS
ELECTROPHYSIOLOGY
BILATERAL REPRESENTATION OF THE HORIZONTAL SEMICIRCULARCANALS IN THE INFERIOR VESTIBULAR NUCLEUS OF CATS.
AD-629 663 FLD. 6/16

•SEMICONDUCTOR DEVICES
INTEGRATED CIRCUITS
INTEGRATED SILICON DEVICE TECHNOLOGY. VOLUME IX. EPITAXY.
AD-629 920 FLD. 9/1

LASERS
SOLID STATE RESEARCH.
AD-629 611 FLD. 20/11

MASERS
STUDY OF SOLID-STATE AND TRAVELING-WAVE MASER TECHNIQUES.
AD-629 359 FLD. 20/5

MICROWAVE EQUIPMENT
DEVELOPMENT OF TRANSISTOR-VARACTOR DIODE CAPABLE OF 3WATTS OUTPUT AT 2.3 GIGACYCLES.
AD-629 566 FLD. 9/1

SURFACE PROPERTIES
SEMICONDUCTOR DESIGN EFFECTS ON RADIATION RESISTANCE.
AD-629 509 FLD. 18/8

•SEMICONDUCTORS
ANTIMONY ALLOYS
HIGH-MOBILITY LOW-MELTING-POINT GROUP III-V COMPOUNDSEMICONDUCTORS.
AD-629 562 FLD. 20/12

DOPING
ION IMPLANTATION DOPING TECHNIQUES.
AD-629 545 FLD. 20/12

LASERS
TRANSLATION OF EAST GERMAN RESEARCH: GAAS SEMICONDUCTRO LASER.
AD-629 728 FLD. 20/5

MATERIALS
RESEARCH INVESTIGATIONS IN THE PHYSICAL CHEMISTRY ANDMETALLURGY OF SEMICONDUCTING MATERIALS.
AD-629 251 FLD. 20/12

RADIATION DAMAGE
RADIATION EFFECTS ON MICROELECTRONIC CIRCUITS (SEMICONDUCTOR).
AD-629 561 FLD. 9/1

•SENSORY DEPRIVATION
ABNORMAL PSYCHOLOGY
REPRINT: DEPERSONALIZATION IN SPACEMEN AND SUBMARINERS.
AD-629 236 FLD. 5/10

•SENSORY MECHANISMS
SKIN
ELECTRIC SPARK STIMULATION OF THE SKIN.
AD-629 848 FLD. 5/10

•SEQUENCES
DYNAMIC PROGRAMMING
LIMIT THEOREM FOR SUBADDITIVE COLLECTIONS OF SEQUENCES.
AD-629 807 FLD. 12/1

•SEQUENTIAL ANALYSIS
ANTENNA LOBES
SHF SEQUENTIAL LOBING SYSTEM.
AD-629 309 FLD. 9/5

•SERIES
STATISTICAL PROCESSES
EXPANSION OF A NON-PERIODIC PROCESS X(T) INTO A FOURIERSERIES WITH UNCORRELATED COEFFICIENTS.
AD-629 266 FLD. 12/1

•SERODIAGNOSIS
PASTEURELLA PESTIS
REPRINT: DETECTION OF AN ENZOOTIC PLAGUE FOCUS BYSEROLOGICAL METHODS.
AD-629 390 FLD. 6/5

TREPONEMA PALLIDUM
REPRINT: SERODIAGNOSIS OF EARLY SYPHILLIS: HOW TO UTILIZETHE NEWER LABORATORY TESTS.
AD-629 347 FLD. 6/5

•SHEAR STRESSES
PETROLOGY
REPRINT: AN APPROXIMATE METHOD OF ESTIMATING SHEARVELOCITY FROM SPECIFIC HEAT.
AD-629 493 FLD. 8/7

•SHIP NOISE
MEASUREMENT

USS OGDEN (LPD-5). NOISE LEVEL SURVEY SHIP'S SPACES.
AD-629 283 FLD. 13/10

SOUND TRANSMISSION
TRANSLATION OF WEST GERMAN RESEARCH: AIR- AND BODY-SOUNDCONDUCTION FROM A SHIP'S PLATING INTO THE SURROUNDING WATER.
AD-629 690 FLD. 20/1

•SHIP PLATES
SOUND TRANSMISSION
TRANSLATION OF WEST GERMAN RESEARCH: AIR- AND BODY-SOUNDCONDUCTION FROM A SHIP'S PLATING INTO THE SURROUNDING WATER.
AD-629 690 FLD. 20/1

•SHIPS
MAINTENANCE
ECONOMIC CONSIDERATIONS IN ESTABLISHING AN OVERHAULCYCLE FOR SHIPS: AN EMPIRICAL ANALYSIS.
AD-629 784 FLD. 13/10

SPARE PARTS
HUMAN JUDGMENT AS A FACTOR IN THE GENERATION OF SHIPS'ALLOWANCE LISTS.
AD-629 443 FLD. 15/5

•SHOCK TUBES
TEMPERATURE
LINE-REVERSAL MEASUREMENTS OF EXCITATION AND ELECTRONTEMPERATURE IN A SHOCK TUBE.
AD-629 719 FLD. 7/4

•SHOCK WAVES
PROPAGATION
REFLECTION OF A SHOCK WAVE AT A SURFACE.
AD-629 472 FLD. 20/4

•SHOCK(MECHANICS)
DESIGN
CHARACTERISTIC DYNAMIC STRENGTH RATIO AS THE LIMITINGPARAMETER IN SHOCK DESIGN.
AD-629 438 FLD. 13/13

•SHOCK(PATHOLOGY)
BLOOD COAGULATION
REPRINT: INTRAVASCULAR COAGULATION IN IRREVERSIBLE SHOCK.
AD-629 263 FLD. 6/5

•SILICON
EPITAXIAL GROWTH
INTEGRATED SILICON DEVICE TECHNOLOGY. VOLUME IX. EPITAXY.
AD-629 520 FLD. 9/1

RECTIFIERS
PRODUCT ENGINEERING MEASURE FOR THE IMPROVEMENT OFPRODUCTION TECHNIQUES TO INCREASE THE RELIABILITY AND TOIMPROVE PRODUCT CAPABILITY OF HIGH VOLTAGE MINIATURESILICON RECTIFIERS.
AD-629 858 FLD. 9/1

•SILOXANE
ELASTOMERS
CARBORANE-SILOXANE ELASTOMERS.
AD-629 735 FLD. 11/10

•SILOXANES
BORON COMPOUNDS
SIB POLYMER DEVELOPMENT.
AD-629 544 FLD. 11/10

COPOLYMERIZATION
REPRINT: GRAFT COPOLYMERIZATION OF VINYLPYRROLIDONE ONTOPOLYDIMETHYLSILOXANE.
AD-629 482 FLD. 11/9

•SILT
SOIL MECHANICS
EFFECT OF CHEMICAL WETTING AGENTS ON THE COMPACTION OFCLAY AND SILT SOILS.
AD-629 659 FLD. 8/13

•SILVER COMPOUNDS
COMPLEX COMPOUNDS
REPRINT: THE PREPARATION AND INFRARED EXAMINATION OF THE2-, 3-, AND 4-CYANOPYRIDINE COMPLEXES OF COPPER(I),SILVER(I), AND GOLD(I) PERCHLORATES.
AD-629 326 FLD. 7/2

•SIMULATION
BACKSCATTERING
SIMULATION OF RADAR BACKSCATTERING IN A RIPPLE TANK.
AD-629 733 FLD. 20/14

•SINGLE CRYSTALS
EXCHANGE REACTIONS
REPRINT: PROTON-DEUTERON EXCHANGE OF THE RADICAL INIRRADIATED SINGLE CRYSTALS OF DL-ASPARTIC ACID: EFFECTOF THE CRYSTAL FIELD ON THE CHAMICAL REACTION.
AD-629 385 FLD. 8/1

SHOCK(MECHANICS)
REPRINT: STRUCTURE OF EXPLOSIVELY SHOCKED MGO CRYSTALS.
AD-629 639 FLD. 20/2

TUNGSTEN
REPRINT: CHEMISORPTION ON SINGLE-CRYSTAL PLANES: NITROGENON TUNGSTEN.
AD-629 287 FLD. 7/4

•SKIN
STIMULATION
ELECTRIC SPARK STIMULATION OF THE SKIN.
AD-629 898 FLD. 5/10

•SLENDER BODIES
COMPRESSIBLE FLOW
COMPRESSIBLE VISCOUS FLOW OVER SLENDER BODIES WITHPRESSURE GRADIENT, VARIABLE FLUID PROPERTIES, ARBITRARYLAWS OF SURFACE TEMPERATURE AND FOREIGN GAS INJECTIONVELOCITY DISTRIBUTION.
AD-629 496 FLD. 20/4

•SLOT ANTENNAS
DIELECTRICS
STUDY OF THE EFFECTS OF DIELECTRIC PLUG-LOADING ON SLOTANTENNAS.
AD-629 682 FLD. 9/5

•SMALL ARMS AMMUNITION
PYROTECHNICS
APPLICATIONS OF PYROTECHNICS TO SMALL ARMS AMMUNITIONAND MILD DETONATING FUSE SYSTEMS.
AD-629 607 FLD. 19/1

•SMOKELESS PROPELLANTS
SYNTHESIS(CHEMISTRY)
RESEARCH IN NITROMONOMERS AND THEIR APPLICATION TOSOLID SMOKELESS PROPELLANTS.
AD-629 300 FLD. 21/9.2

•SOAPS
FILMS
REPRINT: DOUBLE LAYER REPULSION AND VAN DER WAALSATTRACTION IN SOAP FILMS.
AD-629 280 FLD. 7/4
REPRINT: OPTICAL INTERFERENCE IN CURVED SOAP FILMS.
AD-629 404 FLD. 7/4

•SOCIOLOGY
DATA STORAGE SYSTEMS
COMPUTER TECHNOLOGY: IMPACT ON COMMUNICATIONS BUSINESSWITH ATTENDANT SOCIAL CONSEQUENCES.
AD-629 431 FLD. 9/2

•SOFT LANDING
FUEL CONSUMPTION
MINIMUM FUEL ANALYSIS OF A LUNAR SOFT LANDING MISSIONUSING FEEDBACK CONTROL.
AD-629 681 FLD. 22/3

•SOIL MECHANICS
SURFACE-ACTIVE SUBSTANCES
EFFECT OF CHEMICAL WETTING AGENTS ON THE COMPACTION OFCLAY AND SILT SOILS.
AD-629 659 FLD. 8/13

•SOLAR SATELLITES
SPACE PROBES
RADIOISOTOPIC POWER SUPPLY FOR THE SUNBLAZER SPACE PROBE.
AD-629 684 FLD. 18/19

•SOLAR SPECTRUM
ATOMIC SPECTROSCOPY
REPRINT: COMPARISON OF ATOMIC LS-COUPLING LINE ANDMULTIPLET STRENGTHS WITH OBSERVATIONS OF FE I.
AD-629 279 FLD. 3/2

•SOLID ROCKET OXIDIZERS
DEFLAGRATION
RESEARCH ON THE DEFLAGRATION OF HIGH-ENERGY SOLID OXIDIZERS.
AD-629 933 FLD. 21/9.2

•SOLID ROCKET PROPELLANTS
SYNTHESIS(CHEMISTRY)
RESEARCH IN NITROMONOMERS AND THEIR APPLICATION TOSOLID SMOKELESS PROPELLANTS.
AD-629 300 FLD. 21/9.2

•SOLID STATE PHYSICS
REVIEWS
SOLID STATE RESEARCH.
AD-629 611 FLD. 20/11

•SOLIDS
LOW-TEMPERATURE RESEARCH
PROPERTIES OF SOLIDS AT LOW TEMPERATURES.
AD-629 829 FLD. 20/12

•SOUND TRANSMISSION
AIR
TRANSLATION OF WEST GERMAN RESEARCH: AIR- AND BODY-SOUNDCONDUCTION FROM A SHIP'S PLATING INTO THE SURROUNDING WATER.
AD-629 690 FLD. 20/1

UNDERWATER SOUND
ACOUSTIC SPREADING LOSS IN AN INHOMOGENEOUS MEDIUM.
AD-629 459 FLD. 20/1

•SPACE MEDICINE
OXYGEN CONSUMPTION
TOXIC HAZARDS RESEARCH UNIT DESIGN AND CONSTRUCTION PHASE.
AD-629 473 FLD. 14/2

•SPACE PROBES
RADIOACTIVE BATTERIES
RADIOISOTOPIC POWER SUPPLY FOR THE SUNBLAZER SPACE PROBE.
AD-629 684 FLD. 18/19

•SPACE STATIONS
ELECTRIC POWER PRODUCTION
ELECTRICAL POWER SYSTEMS FOR THE MANNED ORBITING LABORATORY.
AD-629 668 FLD. 22/2

•SPARE PARTS
DECISION MAKING
HUMAN JUDGMENT AS A FACTOR IN THE GENERATION OF SHIPS'ALLOWANCE

LISTS.
AD-629 993 FLD. 19/5

•SPECIAL FUNCTIONS(MATHEMATICAL)
HARMONIC ANALYSIS
SPHERICAL HARMONICS IN GEODETIC PROBLEMS.
AD-629 979 FLD. 8/4

•SPECIFIC HEAT
PETROLOGY
REPRINT: AN APPROXIMATE METHOD OF ESTIMATING SHEARVELOCITY FROM SPECIFIC HEAT.
AD-629 993 FLD. 8/7

•SPECTRA(INFRARED)
DIELECTRICS
TEMPERATURE DEPENDENCE OF THE INFRARED SPECTRA OFSELECTED DIELECTRICS.
AD-629 846 FLD. 11/7

•SPECTROSCOPY
COLORS
COLORIMETRIC MEASUREMENTS OF SELECTED COLOR CARDS.
AD-629 739 FLD. 20/6

OPTICAL PHENOMENA
SELF MODULATING DERIVATIVE OPTICAL SPECTROSCOPY.
AD-629 769 FLD. 20/6

PLASMA MEDIUM
EXPERIMENTAL PROGRAM.
AD-629 789 FLD. 20/9

•SPECTRUM ANALYZERS
DATA
TIME-OF-FLIGHT SPECTROMETER.
AD-629 825 FLD. 14/2

MEASURING DEVICES(ELECTRICAL + ELECTR
FREQUENCY MEASURING SPECTRUM ANALYZER.
AD-629 698 FLD. 20/6

MODULATION
SELF MODULATING DERIVATIVE OPTICAL SPECTROSCOPY.
AD-629 769 FLD. 20/6

•SPEECH
INTELLIGIBILITY
PREDICTING THE INTELLIGIBILITY OF WORDS III.
AD-629 296 FLD. 5/10

•SPEECH RECOGNITION
DATA PROCESSING SYSTEMS
SPEECH ANALYSIS.
AD-629 595 FLD. 5/7

•SPHERES
EXPLOSION EFFECTS
RESISTANCE OF HOLLOW GLASS MODELS TO UNDERWATEREXPLOSIONS AT GREAT DEPTHS. SPECIAL CONFIGURATIONS.
AD-629 498 FLD. 19/4

FUNCTIONS
DESCENT OF THE BOUNDARY OF A SPHERE.
AD-629 745 FLD. 12/1

•SPIN
IMPURITIES
THERMODYNAMIC PROPERTIES OF SpIN IMPURITIES INHEISENBERG FERROMAGNETS.
AD-629 721 FLD. 20/3

•SPIN STABILIZATION
SATELLITES(ARTIFICIAL)
LINCOLN EXPERIMENTAL SATELLITE SPIN AXIS ORIENTATIONSYSTEM.
AD-629 398 FLD. 22/2

•SPRINGS
BUCKLING(MECHANICS)
TWIST BUCKLING OF COIL SPRINGS OF VARIOUS WIRE CROSSSECTIONS.
AD-629 686 FLD. 20/11

•STAINLESS STEEL
CORROSION
POTENTIOSTATIC CORROSION STUDIES OF IRON, TYPE-309 ANDTYPE-321 STAINLESS STEEL.
AD-629 269 FLD. 11/6

•STAPHLOCOCCUS AUREUS
NUTRITION
NUTRITIONAL REQUIREMENTS OF ENTEROTOXIGENIC STRAINS OFSTAPHYLOCOCCUS AUREUS.
AD-629 299 FLD. 6/13

•STATISTICAL ANALYSIS
HAZARDS
REPRINT: A STATISTICAL STUDY OF THE DERAILMENT HAZARDFOR U. S. CLASS I RAILWAYS.
AD-629 679 FLD. 12/2

•STATISTICAL MECHANICS
QUANTUM MECHANICS
STATES IN QUANTUM STATISTICAL MECHANICS.
AD-629 816 FLD. 20/10

•STATISTICAL PROCESSES
LINEAR PROGRAMMING
MARKOV RENEWAL PROGRAMMING BY LINEAR FRACTIONALPROGRAMMING.
AD-629 929 FLD. 12/2

PROBABILITY
SIMPLE APPROACH TO THE ZERO-CROSSING PROBLEM.
AD-629 269 FLD. 12/1

PRODUCTION CONTROL
REPRINT: SURVEILLANCE PROBLEMS: WIENER PROCESSES.
AD-629 673 FLD. 12/2

SERIES
EXPANSION OF A NON-PERIODIC PROCESS X(T) INTO A FOURIERSERIES WITH UNCORRELATED COEFFICIENTS.
AD-629 266 FLD. 12/1

•STATISTICAL TESTS
GRAPHICS
SHORT-CUT SOLUTION FOR THE KOLMOGOROV-SMIRNOV TEST.
AD-629 529 FLD. 12/1

•STEEL
DEFORMATION
DEFORMATION CHARACTERISTICS OF METALS AND ALLOYS.
AD-629 267 FLD. 11/6

ULTRASONIC RADIATION
REPRINT: INVERSE MAGNETOSTRICTIVE EFFECT OF ULTRASONICSTRESS WAVES IN STEEL.
AD-629 691 FLD. 11/6

•STEREOCHEMISTRY
POLYCYCLIC COMPOUNDS
REPRINT: BRIDGED POLYCYCLIC COMPOUNDS. THE PROTONMAGNETIC RESONANCE SPECTRA OF SOME DIBENZOBICYCLO(3.2.1)OCTADIENES.
AD-629 373 FLD. 7/3

•STEROIDS
CHEMICAL REACTIONS
REPRINT: STIMULATION OF STEROID C-11-BETA AND C-18HYDROXYLATIONS IN RAT ADRENAL HOMOGENATES BY ADENOSINE3',5'-PHOSPHATE VIA A MECHANISM NOT REQUIRING ENDOGENOUSPRECURSOR, GLYCOGEN PHOSPHORYLATION OR NADPH GENERATION.
AD-629 412 FLD. 6/1

•STOCHASTIC PROCESSES
INFORMATION THEORY
STOCHASTIC FLOW OF MESSAGES AND ITS EFFICIENT TRANSMISSIONTHROUGH COMMUNICATION NETS.
AD-629 299 FLD. 9/4

•STRATOSPHERE
ABSORPTION SPECTRUM
MOISTURE CONTAMINATION AT ALTITUDE BY BALLOON ANDASSOCIATED EQUIPMENT.
AD-629 711 FLD. 4/1

METEOROLOGICAL PARAMETERS
DYNAMICS OF STRATOSPHERIC CIRCULATIONS.
AD-629 591 FLD. 4/1

•STREPTOMYCES
VIRUSES
REPRINT: LIFE-CYCLE OF AN ACTINOPHAGE FOR STREPTOMYCESVENEZUELAE.
AD-629 923 FLD. 6/13

•STRESS(PHYSIOLOGY)
FORCE(MECHANICS)
EFFECTS OF FORCE UPON ANIMALS AND HUMAN BEINGS; THE EFFECTSOF ELASTICITY UPON THE PRESSURES WITHIN A LIQUID FILLED TUBEWHEN SUBJECTED TO FLUCTUATING FORCES.
AD-629 919 FLD. 6/19

HAZARDS
SELECTION OF MEN FOR HAZARDOUS DUTY FROM INDICES OFINDIVIDUAL DIFFERENCES IN AUTONOMIC NERVOUS SYSTEMREACTIVITY.
AD-629 783 FLD. 6/19

LIPIDS
REPRINT: EFFECT OF ACUTE AND CHRONIC COLD EXPOSURE ONTISSUE LIPIDS IN THE RAT.
AD-629 799 FLD. 6/19

•STRESS(PSYCHOLOGY)
PERFORMANCE(HUMAN)
DETERMINERS OF PSYCHOLOGICAL STRESS.
AD-629 950 FLD. 5/10

PSYCHOMETRICS
SELECTION OF MEN FOR HAZARDOUS DUTY FROM INDICES OFINDIVIDUAL DIFFERENCES IN AUTONOMIC NERVOUS SYSTEMREACTIVITY.
AD-629 783 FLD. 6/19

•STRESSES
COMPOSITE MATERIALS
INTERIOR ELASTIC STRESS FIELD IN A CONTINUOUS, CLOSEPACKED FILAMENTARY COMPOSITE MATERIAL UNDER UNAXIALTENSION.
AD-629 972 FLD. 11/4

GAS TURBINE ROTORS
TRANSLATION OF RUSSIAN RESEARCH. COMPUTATION OFTEMPERATURE FIELDS AND STRESSES IN THE COOLED ROTOR OF AGAS TURBINE ON STARTING.
AD-629 892 FLD. 21/5

PROPAGATION
TRANSIENT ANALYSIS OF OBLIQUE IMPACT ON PLATES.
AD-629 379 FLD. 20/11

•STRUCTURAL GEOLOGY
WISCONSIN
CRUSTAL STRUCTURE IN THE WISCONSIN AREA.
AD-629 629 FLD. 8/11

•STRUCTURAL PARTS
PLASTICS
TRANSLATION OF WEST GERMAN RESEARCH. BASES FOR THEDESIGN OF

DEFINITIVELY STRESSED CONSTRUCTION ELEMENTS MADEOF SYNTHETICS.
AD-629 432 FLD. 11/9

•STRUCTURAL SHELLS
BUCKLING(MECHANICS)
EFFECTS OF PLASTICITY ON THE BUCKLING AND POSTBUCKLINGOF CIRCULAR CYLINDRICAL SHELLS.
AD-629 660 FLD. 20/13

CYLINDRICAL BODIES
REPRINT: RESPONSE OF A CYLINDRICAL SHELL TO AN ELASTICWAVE.
AD-629 367 FLD. 20/11

VIBRATION
THE EFFECT OF STRUCTURAL DAMPING ON THE ACOUSTICAL FIELDSURROUNDING A SUBMERGED VIBRATING SANDWICH SHELL.
AD-629 442 FLD. 20/11

•STYRENE PLASTICS
DEGRADATION
PHOTODEGRADATION OF HIGH POLYMERS IN SOLUTION.SOLVENT EFFECTS IN THE PHOTOLYSIS OF POLYSTYRENE.
AD-629 593 FLD. 8/1

•SUBLIMATION
BLUNT BODIES
TRANSLATION OF RUSSIAN RESEARCH: CALCULATION OF A LAMINARBOUNDARY LAYER FOR SUBLIMABLE SURFACE.
AD-629 761 FLD. 20/4

•SUBMARINE PERSONNEL
ATTITUDES
REPRINT: EFFECTS OF THE CUBAN CRISIS UPON ATTITUDESRELATED TO WAR AND PEACE.
AD-629 793 FLD. 5/10

PHYSICAL FITNESS
VISUAL REQUIREMENT FAILURE BY CANDIDATES REPORTING FORBASIC SUBMARINE TRAINING DURING 1964.
AD-629 781 FLD. 5/9

SELECTION
CURRENT PROBLEMS IN ENLISTED SUBMARINE PHYSICALEXAMINATIONS.
AD-629 779 FLD. 5/9

•SUBMARINES
NOISE
NOISE SURVEY OF ENGINE ROOMS OF U.S.S. TRINGA.
AD-629 766 FLD. 6/19

•SUBSONIC FLOW
JET MIXING FLOW
EXPERIMENTAL STUDY OF THE TURBULENT MIXING OF A SUBSONICAND A SUPERSONIC JET IN A CLOSED DUCT.
AD-629 591 FLD. 20/4

•SULFUR COMPOUNDS
FLUORIDES
REPRINT: INFRARED EVIDENCE FOR DIMER FORMATIONOF SULFUR TETRAFLUORIDE AND OF THIONYL FLUORIDE ATLOW TEMPERATURES.
AD-629 402 FLD. 7/2

•SUPERCONDUCTIVITY
METALS
REPRINT: SUPERCONDUCTIVITY IN THE ARTIFICIAL METALS:METALLIC INDIUM ANTIMONIDE, THE INDIUM-ANTIMONIDETIN ALLOYS, AND METALLIC INDIUM TELLURIDE.
AD-629 376 FLD. 20/12

•SUPERCONDUCTORS
INDUCTANCE
ROLE OF INDUCTANCE IN SUPERCONDUCTING ENERGY STORAGECIRCUITS.
AD-629 707 FLD. 20/3

•SUPERSONIC FLOW
JET MIXING FLOW
EXPERIMENTAL STUDY OF THE TURBULENT MIXING OF A SUBSONICAND A SUPERSONIC JET IN A CLOSED DUCT.
AD-629 591 FLD. 20/4

SUBLIMATION
TRANSLATION OF RUSSIAN RESEARCH: CALCULATION OF A LAMINARBOUNDARY LAYER FOR SUBLIMABLE SURFACE.
AD-629 761 FLD. 20/4

WEDGES
RADIATION COUPLED WEDGE FLOW USING METHOD OF INTEGRALRELATIONS.
AD-629 554 FLD. 20/4

•SUPPRESSORS
ELECTRIC DISCHARGES
RADIOFREQUENCY DISCHARGES.
AD-629 459 FLD. 19/1

•SURFACE PROPERTIES
FLUORINE COMPOUNDS
ORGANIC FLUORINE COMPOUNDS: SURFACE PROPERTIES.
AD-629 610 FLD. 7/4

HEAT-RESISTANT GLASS
INFRARED STUDY OF THE NATURE OF THE HYDROXYL GROUPS ON THESURFACE OF POROUS VYCOR GLASS.
AD-629 595 FLD. 7/4

SEMICONDUCTOR DEVICES
SEMICONDUCTOR DESIGN EFFECTS ON RADIATION RESISTANCE.
AD-629 509 FLD. 18/8

•SURFACE-ACTIVE SUBSTANCES
SEA WATER
ADSORPTION OF SURFACE-ACTIVE MATERIAL AT THE SURFACE OFSEA-WATER SAMPLES FROM THE BAY OF PANAMA.
AD-629 429 FLD. 8/10

SOIL MECHANICS
EFFECT OF CHEMICAL WETTING AGENTS ON THE COMPACTION OFCLAY AND SILT SOILS.
AD-629 659 FLD. 8/13

•SWEAT GLANDS
HUMANS
REPRINT: HUMAN ECCRINE SWEAT GLAND.
AD-629 409 FLD. 6/16

•SYMPOSIA
NON-DESTRUCTIVE TESTING
SYMPOSIUM ON PHYSICS AND NONDESTRUCTIVE TESTING, HELDAT SHERATON-DAYTON HOTEL, DAYTON, OHIO, SEPTEMBER 28-30,1965.
AD-629 582 FLD. 13/8

•SYNTHETIC RUBBER
PURIFICATION
REPRINT: STERILIZATION OF POLYMERS USED IN MEDICINE.
AD-629 504 FLD. 6/12

•SYSTEMS ENGINEERING
DEFENSE SYSTEMS
MILITARY PROBLEMS: APPLICATION OF SYSTEMS ANALYSIS.
AD-629 463 FLD. 15/7

•TANTALUM CAPACITORS
MANUFACTURING METHODS
PRODUCTION ENGINEERING MEASURE FOR CAPACITORS, FEEDTHROUGH, SOLID ELECTROLYTE TANTALUM PELLET.
AD-629 513 FLD. 9/1
PRODUCTION ENGINEERING MEASURE FOR IMPROVED RELIABILITYOF SOLID ELECTROLYTE TANTALUM CAPACITORS.
AD-629 748 FLD. 9/1

•TARGET ACQUISITION
PROBABILITY
REPRINT: PROBABILITY THAT AN ACOUSTIC HOMING TORPEDO WILLACQUIRE A SUBMARINE.
AD-629 677 FLD. 15/1

•TARGETS
SIMULATORS
DATA RECOVERY CENTER TARGET SIMULATOR.
AD-629 362 FLD. 9/2

•TECHNICAL INFORMATION CENTERS
UNITED STATES GOVERNMENT
RECOMMENDATIONS FOR NATIONAL DOCUMENT HANDLINGSYSTEMS IN SCIENCE AND TECHNOLOGY.
AD-629 560 FLD. 9/2

•TEETH
FLUORINATION
EFFECT OF CONTROLLED ELECTROPHORESIS ON DEPOSITION OFFLUORIDE ON TOOTH STRUCTURE.
AD-629 680 FLD. 6/5

•TEMPERATURE
ELECTROCARDIOGRAPHY
EFFECTS OF ENVIRONMENTAL TEMPERATURE CHANGES ON THE EKGOF THE SQUIRREL MONKEY (SAIMIRI SCIUREUS).
AD-629 527 FLD. 6/6

•TEMPERATURE SENSITIVE ELEMENTS
RADIOSONDES
IMPROVEMENT IN ACCURACY OF THE ML-419 RADIOSONDETEMPERATURE ELEMENT FOR HEIGHTS ABOVE 90,000 FEETAND UP TO 150,000 FEET.
AD-629 855 FLD. 4/1

•TENDONS
CANCER
REPRINT: CLEAR-CELL SARCOMA OF TENDONS AND APONEUROSES.AN ANALYSIS OF 21 CASES.
AD-629 298 FLD. 6/5

•TERRESTRIAL MAGNETISM
ARCTIC REGIONS
MORPHOLOGY OF HIGH LATITUDE GEOMAGNETIC DISTURBANCEAND CORRELATIONS WITH SATELLITE MAGNETIC FIELD MEASUREMENTS.
AD-629 319 FLD. 8/14

PACIFIC OCEAN
OFFSHORE GRAVITY AND MAGNETIC ANOMALIES IN THESANTA BARBARA CHANNEL, CALIFORNIA.
AD-629 700 FLD. 8/4

POLAR REGIONS
TERRESTRIAL MAGNETISM: LOW LATITUDE 'NEGATIVE BAYS' IN THEAFTERNOON SECTOR.
AD-629 507 FLD. 8/14

•TEST METHODS
LUBRICANTS
DEVELOPMENT OF A METHOD FOR EVALUATING LUBRICANTS FORCOLD WORKING METALS.
AD-629 491 FLD. 11/8

•THERMAL RADIATION
OXYGEN
MOLECULAR ATMOSPHERIC OXYGEN HORIZON STUDY DATA EVALUATIONSTUDY REPORT.
AD-629 615 FLD. 22/2

PIPES
TRANSLATION OF RUSSIAN RESEARCH: DETERMINATION OFTHE OPTIMUM DIMENSIONS OF RADIATING FINS.
AD-629 850 FLD. 20/13

788-319 O - 66 - 9

SUPERSONIC FLOW
RADIATION COUPLED WEDGE FLOW USING METHOD OF INTEGRALRELATIONS.
AD-624 984 FLD. 20/4

•THERMAL STRESSES
CRYSTALS
X-RAY DIFFRACTION STUDIES OF THERMAL MOTIONS IN CRYSTALS.
AD-624 823 FLD. 20/2

•THERMISTORS
FILMS
THIN FILM THERMISTORS.
AD-624 965 FLD. 9/1

•THERMODYNAMICS
IMPURITIES
THERMODYNAMIC PROPERTIES OF SPIN IMPURITIES INHEISENBERG FERROMAGNETS.
AD-624 721 FLD. 20/3

LIQUEFIED GASES
EXPERIMENTAL PROGRAM TO DETERMINE THE THERMODYNAMICPROPERTIES OF SOLUTIONS OF LIQUEFIED LIGHT GASES.
AD-624 942 FLD. 20/13

•THERMOELECTRICITY
DIODES(SEMICONDUCTOR)
INVESTIGATION OF GERMANIUM DIODES FOR THERMO-PHOTOVOLTAICENERGY CONVERTORS.
AD-624 313 FLD. 10/1

NETWORKS
STABILITY AND DYNAMIC BEHAVIOR OF CASCADED THERMOELECTRIC DEVICES.
AD-624 828 FLD. 9/1

•THERMONUCLEAR REACTIONS
CONTROL
RESEARCH IN HIGH TEMPERATURE PLASMAS FOR SPACE APPLICATIONS•VOLUME II. ENGINEERING.
AD-624 986 FLD. 20/9

•THIN FILMS(STORAGE DEVICES)
ELECTRODEPOSITION
ELECTRODEPOSITED MAGNETIC FILM DEVELOPMENT.
AD-624 930 FLD. 9/1

•THRUST BEARINGS
GAS BEARINGS
EXTERNALLY-PRESSURIZED GAS-LUBRICATED THRUST BEARINGS;TRANSLATION OF AUSTRIAN RESEARCH.
AD-624 289 FLD. 13/9

•THYMUS
RADIATION EFFECTS
HOMOGRAFT RESPONSE AND HEMAGGLUTININ PRODUCTION BYSENSITIZED THYMECTOMIZED IRRADIATED ADULT MICE.
AD-624 989 FLD. 6/18

•THYROXINE
METABOLISM
REPRINT: RADIOTHYROXINE TURNOVER IN OBESITY.
AD-624 334 FLD. 6/5

•TIME INTERVAL COUNTERS
DIGITAL SYSTEMS
EXPERIMENTAL MECHANICAL TIMER WITH DETATCHED LEVERESCAPEMENT AND DIGITAL READOUT SYSTEM.
AD-624 746 FLD. 14/2

•TIN ALLOYS
INDIUM ALLOYS
ARTIFICIAL METALS: INSB, THE SN ALLOYS WITH INSB, ANDMETALLIC INTE.
AD-624 377 FLD. 11/6

•TITANIUM
DEFORMATION
DEFORMATION CHARACTERISTICS OF METALS AND ALLOYS.
AD-624 267 FLD. 11/6

•TOXICITY
ENZYMES
TRANSLATION OF RUSSIAN RESEARCH: CONCERNING THEHYGIENIC STUDY OF ENZYME PREPARATIONS PRODUCED BYMICROFUNGI AND THEIR POSSIBLE USE IN THE FOOD INDUSTRY.
AD-624 988 FLD. 6/8

MEDICAL RESEARCH
TOXIC HAZARDS RESEARCH UNIT DESIGN AND CONSTRUCTION PHASE.
AD-624 473 FLD. 14/2

•TOXINS + ANTITOXINS
PREPARATION
REPRINT: AMMONIUM TOXICITY, A POTENTIAL ARTIFACT INPREPARATION OF TOXINS.
AD-624 624 FLD. 6/13

•TRACKING
HORN ANTENNAS
SHF SEQUENTIAL LOBING SYSTEM.
AD-624 304 FLD. 9/5

•TRAINING DEVICES
ELECTRONIC TECHNICIANS
INVESTIGATION OF THE UTILITY OF A CONVERSION CHART AS A JOBAID FOR ELECTRONICS TECHNICIANS.
AD-624 608 FLD. 5/9

VISUAL ACUITY
DETECTION IN A HOMOGENEOUS VISUAL FIELD UNDER A CONDITIONOF INFINITE DEPTH OF FOCUS; DEVELOPMENT OF A TRAININGDEVICE FOR PILOTS.
AD-624 931 FLD. 5/9

•TRANSDUCERS
MAGNETOSTRICTIVE ELEMENTS
MEASUREMENTS ON ONE AND TWO LINES OF FREE-FLOODEDMAGNETOSTRICTIVE RING TRANSDUCERS.
AD-624 709 FLD. 20/1

•TRANSFORMATIONS(MATHEMATICS)
FIELD THEORY
REPRINT: GENERALIZATION OF THE LANDAU GAUGE.
AD-624 397 FLD. 20/8

•TRANSISTOR AMPLIFIERS
L-BAND
LOW-NOISE L-BAND TRANSISTOR AMPLIFIER.
AD-624 614 FLD. 9/5

•TRANSISTORS
MATHEMATICAL MODELS
REPRINT: USING AN ANALOG COMPUTER TO ANALYZE TRANSISTOR CIRCUIT PERFORMANCE.
AD-624 490 FLD. 9/1

•TRANSMITTER-RECEIVERS
SINGLE SIDEBAND COMMUNICATION SYSTEMS
DESIGN, DEVELOPMENT, AND FABRICATION OF THE HIGH-FREQUENCYSINGLE-SIDEBAND TRANSCEIVER AN/ARC-109(V).
AD-624 697 FLD. 17/2.1

•TRANSONIC FLOW
AXIALLY SYMMETRIC FLOW
STUDY OF AXISYMMETRIC TRANSONIC FLOW USING THE METHOD OFPARAMETRIC DIFFERENTIATION.
AD-624 683 FLD. 20/4

•TRANSPLANTATION
LABELED SUBSTANCES
REPRINT: EL DESTINO DE TRANSPLANTE DE CORNEA (RESULTSOF CORNEA TRANSPLANTS).
AD-624 619 FLD. 6/5

•TRANSPORT PROPERTIES
WAVE TRANSMISSION
RADIATIVE TRANSPORT AND THE CALCULUS OF VARIATIONS, THEINVARIANT VARIATIONAL PRINCIPLE AND NORMAL INITIAL ANDBOUNDARY DATA.
AD-624 777 FLD. 12/1

•TRANSPORTATION
ECONOMICS
TRANSPORTATION FORECAST AND PREDICTION STUDY.
AD-624 285 FLD. 15/5

USSR
SOVIET TRANSPORT AND COMMUNICATIONS: OUTPUT INDEXES,1928-1962.
AD-624 818 FLD. 5/3

•TRAVELING-WAVE TUBES
X BAND
LOW-NOISE, MULTIPLE-FUNCTION, X-BAND TRAVELING-WAVETUBE.
AD-624 911 FLD. 9/1

•TRAVELING-WAVES TUBES
MASERS
STUDY OF SOLID-STATE AND TRAVELING-WAVE MASER TECHNIQUES.
AD-624 359 FLD. 20/5

•TREES
TRANSPLANTATION
TRANSLATION OF RUSSIAN RESEARCH: SIBERIAN CEDAR ON PINEROOTSTOCK.
AD-624 570 FLD. 2/6

•TREPONEMA PALLIDUM
DISEASES
REPRINT: SERODIAGNOSIS OF EARLY SYPHILLIS: HOW TO UTILIZETHE NEWER LABORATORY TESTS.
AD-624 347 FLD. 6/5

•TUNGSTEN
ELECTRODES
REPRINT: GLASS-COATED TUNGSTEN MICROELECTRODES.
AD-624 393 FLD. 9/1

•TUNNEL DIODES
NEURISTORS
TUNNEL JUNCTION NEURISTOR.
AD-624 590 FLD. 9/1

•TURBINES
CASCADE STRUCTURES
TRANSLATION OF RUSSIAN RESEARCH: AN ANALYSIS OF THERESULTS OF INVESTIGATIONS OF A MODEL TURBINE STAGEUSING COMPUTERS.
AD-624 836 FLD. 10/1

•TURBOJET ENGINES
DESIGN
HEAVY-LIFT TIP TURBOJET ROTOR SYSTEM. ENGINE DESIGN.
AD-624 716 FLD. 1/3

•TURBULENCE
ENERGY
REGIONS OF NEGATIVE TURBULENT ENERGY-PRODUCTION.
AD-624 302 FLD. 20/4

•TURBULENT BOUNDARY LAYER
BOUNDARY LAYER CONTROL
INVESTIGATION OF METHODS FOR RE-ESTABLISHMENT OF A LAMINARBOUNDARY LAYER FROM TURBULENT FLOW.
AD-624 488 FLD. 20/4

•ULTRASONIC RADIATION
NON-DESTRUCTIVE TESTING

ADVANCEMENT OF ULTRASONIC TECHNIQUES USING RERADIATEDSOUND ENERGIES FOR NONDESTRUCTIVE EVALUATION OF WELDMENTS.
AD-624 262 FLD. 13/8

STRESSES
REPRINT: INVERSE MAGNETOSTRICTIVE EFFECT OF ULTRASONICSTRESS WAVES IN STEEL.
AD-624 691 FLD. 11/6

•ULTRAVIOLET RADIATION
PLASMA MEDIUM
REPRINT: INTENSE 584-A LIGHT FROM A SIMPLE CONTINUOUSHELIUM PLASMA.
AD-624 375 FLD. 20/9

•UNDERGROUND EXPLOSIONS
CONTAINMENT
ANALYSIS OF GROUND MOTION AND CONTAINMENT.
AD-624 922 FLD. 18/3

DAMPING
DECOUPLING ESTIMATES FOR UNDERGROUND EXPLOSIONS.
AD-624 715 FLD. 19/4

PREPARATION
LABORATORY DESIGN, ANALYSIS, AND FIELD CONTROL OF GROUTINGMIXTURES EMPLOYED AT A NUCLEAR TEST IN SALT.
AD-624 529 FLD. 18/3

•UNDERWATER EXPLOSIONS
EXPLOSION EFFECTS
RESISTANCE OF HOLLOW GLASS MODELS TO UNDERWATEREXPLOSIONS AT GREAT DEPTHS. SPECIAL CONFIGURATIONS.
AD-624 498 FLD. 19/4
DEVELOPMENT OF PROBES FOR MEASURING THE MAXIMUMRADIUS OF UNDERWATER EXPLOSION BUBBLES.
AD-624 910 FLD. 14/2

•UNDERWATER SOUND
FATIGUE(PHYSIOLOGY)
AUDITORY FATIGUE UNDERWATER AT 1900 CYCLES PER SECOND.
AD-624 753 FLD. 6/19

STRUCTURAL SHELL
THE EFFECT OF STRUCTURAL DAMPING ON THE ACOUSTICAL FIELDSURROUNDING A SUBMERGED VIBRATING SANDWICH SHELL.
AD-624 442 FLD. 20/11

•UNDERWATER SOUND EQUIPMENT
MAGNETOSTRICTIVE ELEMENTS
MEASUREMENTS ON ONE AND TWO LINES OF FREE-FLOODEDMAGNETOSTRICTIVE RING TRANSDUCERS.
AD-624 709 FLD. 20/1

POSITION FINDING
UNDERWATER ACOUSTIC RAY SHIP POSITIONING AND TRACKINGSYSTEM.
AD-624 454 FLD. 17/7

•UNDERWATER TRACKING
UNDERWATER SOUND EQUIPMENT
UNDERWATER ACOUSTIC RAY SHIP POSITIONING AND TRACKINGSYSTEM.
AD-624 454 FLD. 17/7

•UNITED NATIONS
DISARMAMENT
UNITED NATIONS DISARMAMENT NEGOTIATIONS, 1953-1957.
AD-624 666 FLD. 5/4

•UNITED STATES GOVERNMENT
PUBLIC HEALTH
COST/BENEFIT ANALYSIS IN HEALTH.
AD-624 778 FLD. 14/1

•URINARY SYSTEM
PATHOLOGY
REPRINT: GOODPASTURE'S SYNDROME, A CLINICOPATHOLOGICENTITY.
AD-624 339 FLD. 6/5

•URINE
DISTILLATION
WATER RECOVERY FROM HUMAN LIQUID WASTES BY DISTILLATIONAND CHEMICAL OXIDATION.
AD-624 671 FLD. 13/2

•USSR
ECONOMICS
FARM EMPLOYMENT IN THE SOVIET UNION, 1928-1963.
AD-624 699 FLD. 5/3

MILITARY STRATEGY
SOVIET MILITARY THEORY: AN ADDITIONAL SOURCE OF INSIGHTINTO ITS DEVELOPMENT.
AD-624 797 FLD. 15/7

•VALUE ENGINEERING
ARMED FORCES PROCUREMENT
APPLICATION OF DEFENSE VALUE ENGINEERING.
AD-624 810 FLD. 14/1

•VAPORIZATION
CATALYSIS
REPRINT: VAPORIZATION CATALYSIS. THE DECOMPOSITION OFGALLIUM NITRIDE.
AD-624 384 FLD. 7/4

•VAPORS
ACIDS
METHOD AND APPARATUS FOR THE DETERMINATION OF STRONGACID VAPORS IN THE PARTS/MILLION RANGE.
AD-624 296 FLD. 7/2

•VEGETABLES
MEDICINE
TRANSLATION OF RUSSIAN RESEARCH: CABBAGE THERAPY. MEDICINAL PROPERTIES OF THE PLANTS ALOE AND CALENDULA.
AD-624 984 FLD. 6/3

•VENUS
RADIO ASTRONOMY
RADIO ECHO OBSERVATIONS OF VENUS AND MERCURYAT 23 CM WAVELENGTH.
AD-624 731 FLD. 3/1

•VERTICAL INDICATORS
DISPLAY SYSTEMS
CONTACT ANALOG SIMULATOR EVALUATIONS: THE INFLUENCE OFSCREEN SIZE AND IMAGE FIELD OF VIEW.
AD-624 579 FLD. 1/4

•VIDEO AMPLIFIERS
LOGARITHMIC AMPLIFIERS
HIGH PERFORMANCE LOG VIDEO AMPLIFIER.
AD-624 299 FLD. 9/5

•VIETNAM
CHINA
LIN PIAO ON 'PEOPLE'S WAR': CHINA TAKES A SECOND LOOKAT VIETNAM.
AD-624 495 FLD. 15/7

•VINYLPYRROLIDONE
COPOLYMERIZATION
REPRINT: GRAFT COPOLYMERIZATION OF VINYLPYRROLIDONE ONTOPOLYDIMETHYLSILOXANE.
AD-624 482 FLD. 11/9

•VISCOELASTICITY
THEORY
REPRINT: VISCOELASTIC BEHAVIOR OF HETEROGENEOUS MEDIA.
AD-624 903 FLD. 20/11

•VISCOSITY
HYDROSTATIC PRESSURE
EFFECT OF SODIUM CHLORIDE ADDITION ON THE VISCOSITY OFWATER UNDER PRESSURE.
AD-624 291 FLD. 7/4

•VISION
SUBMARINE PERSONNEL
VISUAL REQUIREMENT FAILURE BY CANDIDATES REPORTING FORBASIC SUBMARINE TRAINING DURING 1964.
AD-624 781 FLD. 5/9

•VISUAL ACUITY
TRAINING DEVICES
DETECTION IN A HOMOGENEOUS VISUAL FIELD UNDER A CONDITIONOF INFINITE DEPTH OF FOCUS; DEVELOPMENT OF A TRAININGDEVICE FOR PILOTS.
AD-624 531 FLD. 5/9

•VISUAL PERCEPTION
IMAGES
TRANSLATION OF RUSSIAN RESEARCH: COMPILATION OFABSTRACTS ON OPTICAL DETECTION.
AD-624 939 FLD. 20/6

THRESHOLDS(PHYSIOLOGY)
CORTICAL CONTROL OF EYE MOVEMENTS AND VISUAL THRESHOLD.
AD-624 790 FLD. 6/16

•VITAMIN B COMPLEX
LACTOBACILLUS
REPRINT: BIOTIN TRANSPORT AND ACCUMULATION BY CELLS OFLACTOBACILLUS PLANTARUM. GENERAL PROPERTIES OF THE SYSTEM.
AD-624 491 FLD. 6/13

•VOLUMETRIC ANALYSIS
CALORIMETERS
REPRINT: SENSITIVE, AUTOMATICALLY RECORDING QUASIISOTHERMAL CALORIMETER.
AD-624 329 FLD. 14/2

MOLYBDENUM
REPRINT: COULOMETRIC GENERATION OF MOLYBDENUM(V).
AD-624 348 FLD. 7/2

•VORTICES
VISCOSITY
SECONDARY FLOW IN A VISCOUS VORTEX.
AD-624 580 FLD. 20/4

•VULCANIZATES
CADMIUM COMPOUNDS
IMPROVEMENT IN COMPRESSION SET RESISTANCE OR ELASTOMERICVULCANIZATES USING CADMIUM OXIDE.
AD-624 744 FLD. 11/10

•WAGES
DISTRIBUTION THEORY
WAGE POLICY AND DISTRIBUTION THEORY.
AD-624 535 FLD. 5/3

•WATER
ELECTRICAL CONDUCTANCE
ARRHENIUS ACTIVATION ENERGY OF ELECTRICAL CONDUCTANCE OFLIGHT AND HEAVY WATER.
AD-624 292 FLD. 7/4

VISCOSITY
EFFECT OF SODIUM CHLORIDE ADDITION ON THE VISCOSITY OFWATER UNDER PRESSURE.
AD-624 291 FLD. 7/4

•WATER SUPPLIES
PURIFICATION
REACTIONS OF CHLORINE DIOXIDE AND OTHER OXY-CHLORO COMPOUNDS WITH ORGANIC COMPOUNDS. KINETICS OF REACTIONBETWEEN CHLORINE DIOXIDE AND PHENOL.
AD-629 316 FLD. 7/3

URINE
WATER RECOVERY FROM HUMAN LIQUID WASTES BY DISTILLATIONAND CHEMICAL OXIDATION.
AD-629 671 FLD. 13/2

•WATER WAVES
ABSORPTION
COMPLIANT WATER WAVE ABSORBERS.
AD-629 908 FLD. 13/10

•WAVE FUNCTIONS
MATRIX ALGEBRA
REPRINT: CALCULATING MATRIX ELEMENTS BETWEEN CONFIGURATIONSWITH SEVERAL OPEN 1 SHELLS.
AD-629 276 FLD. 7/4

•WAVEGUIDES
COAXIAL CABLES
ZERO-CUTOFF MODE IN DIELECTRIC-LOADED COAXIAL WAVEGUIDE.
AD-629 617 FLD. 9/1

MICROWAVES
GUIDING, SCATTERING, AND RADIATION OF ELECTROMAGNETICWAVES.
AD-629 843 FLD. 20/14

•WEATHER FORECASTING
NUCLEAR EXPLOSIONS
WEATHER AND SURFACE RADIATION PREDICTION ACTIVITIES FORTHE SALMON EVENT.
AD-629 496 FLD. 18/3

•WELDS
NON-DESTRUCTIVE TESTING
ADVANCEMENT OF ULTRASONIC TECHNIQUES USING RERADIATEDSOUND ENERGIES FOR NONDESTRUCTIVE EVALUATION OF WELDMENTS.
AD-629 262 FLD. 13/8

•WEST GERMANY
CIVIL DEFENSE SYSTEMS
CIVIL DEFENSE IN GERMANY.
AD-629 706 FLD. 15/3

•WET CELLS
AMMONIA
REVIEW OF RECENTLY DEVELOPED LIQUID AMMONIA BATTERIES.
AD-629 768 FLD. 10/3

STORAGE BATTERIES
CHEMOELECTRIC ENERGY CONVERSION FOR NONAQUEOUS RESERVEBATTERIES.
AD-629 811 FLD. 10/3

•WHOLE-BODY IRRADIATION
IMMUNITY
HOMOGRAFT RESPONSE AND HEMAGGLUTININ PRODUCTION BYSENSITIZED THYMECTOMIZED IRRADIATED ADULT MICE.
AD-629 485 FLD. 6/18

•WIND
GREENLAND
FREQUENCY DISTRIBUTIONS OF UPPER WINDS IN THE GREENLANDAREA.
AD-629 505 FLD. 4/2

•X-RAY DIFFRACTION ANALYSIS
CRYSTALS
X-RAY STUDIES OF SIMPLE CRYSTALS.
AD-629 435 FLD. 20/2
X-RAY DIFFRACTION STUDIES OF THERMAL MOTIONS IN CRYSTALS.
AD-629 823 FLD. 20/2

•YTTERBIUM
ION EXCHANGE
RARE-EARTH-IRON EXCHANGE INTERACTION IN THE GARNETS.II-EXCHANGE POTENTIAL FOR YTTERBIUM.
AD-629 719 FLD. 7/4

•YTTRIUM
HYDROLYSIS
REPRINT: STUDIES ON THE HYDROLYSIS OF THE YTTRIUM(III) ION.
AD-629 324 FLD. 7/2

PERSONAL AUTHOR INDEX

The fields/groups indicated here apply only to the Technical Abstract Bulletin Section (on white paper).

•ABEI, TOHRU
• • •
BILIRUBIN-CARBON-14 METABOLISM IN ISOLATEDINTESTINAL LOOPS,
AD-629 915 FLD. 6/5

•ABELE, DONALD C.
• • •
FURTHER STUDIES ON THE HUMAN ECCRINE SWEATGLAND.
AD-629 909 FLD. 6/16

•ABLOW, C. M.
• • •
SUBDIRECT DECOMPOSITIONS OF TRANSITIONGRAPHS,
AD-629 977 FLD. 12/2

•ABRAMS, LEONARD S.
• • •
A 'STATIC' SOLUTION TO A 'DYNAMIC' PROBLEM INACQUISITION PROBABILITY,
AD-629 677 FLD. 19/1

•ACHENBACH, J. D.
• • •
THICKNESS SHEAR VIBRATIONS OF AN ABLATINGROCKET.
AD-629 737 FLD. 21/8.2

•ACTON, C. V.
• • •
AN ATLAS OF THE ABSORPTION OF THE ATMOSPHEREFROM 8512 TO 11, 600A.
AD-629 323 FLD. 4/1

•ADONIAN, G.
• • •
MONOPULSE RADAR TRACKING TECHNIQUES,
AD-629 630 FLD. 17/9

•AFFENS, W. A.
• • •
THE EFFECT OF LIGHT INTENSITY AND THICKNESSOF CULTURE SOLUTION ON OXYGEN PRODUCTIONBY ALGAE.
AD-629 932 FLD. 6/11

•AKASOFU, SYUN-ICHI
• • •
ON THE LOW LATITUDE 'NEGATIVE BAYS' IN THEAFTERNOON SECTOR.
AD-629 907 FLD. 8/14

•ALDRED, WILLIAM MURRAY, JR.
• • •
MONTE CARLO TECHNIQUES OF SIMULATION APPLIEDTO A SINGLE ITEM INVENTORY SYSTEM.
AD-629 669 FLD. 5/1

•ALI, S. IFTIKHAR
• • •
THE THERMAL DISSOCIATION OF SOME BIS ANDTETRAKIS (PYRIDINE) METAL COMPLEXES,
AD-629 332 FLD. 7/2

•ALLENWORTH, THOMAS N.
• • •
DEEP FREEZE '61 DENTAL OFFICER'S REPORT,
AD-629 780 FLD. 5/9

•ALLEN, DAN C.
• • •
FRANKLIN D. ROOSEVELT AND THE DEVELOPMENTOF AN AMERICAN OCCUPATION POLICY IN EUROPE.
AD-629 656 FLD. 5/4

•ANAND, D. K.
• • •
ON THE STABILITY AND DYNAMIC BEHAVIOR OFCASCADED THERMOELECTRIC DEVICES,
AD-629 828 FLD. 9/1

•ANDERBERG, MICHAEL R.
• • •
ELECTRICAL POWER SYSTEMS FOR THE MANNEDORBITING LABORATORY.
AD-629 668 FLD. 22/2

•ANDERSON, GRIFFIN Y.
• • •
MECHANISMS OF COMBUSTION INSTABILITY,
AD-629 839 FLD. 21/2

•ANDERSON, ORSON L.
• • •
AN APPROXIMATE METHOD OF ESTIMATING SHEARVELOCITY FROM SPECIFIC HEAT,
AD-629 493 FLD. 8/7

•ANDERSON, ROBERT I.
• • •
THE SERODIAGNOSIS OF EARLY SYPHILIS: HOW TOUTILIZE THE NEWER LABORATORY TESTS,
AD-629 347 FLD. 6/5

•ANDREWS, FRED A.
• • •
A COMPARISON OF TENDERNESS PARAMETERS INDEHYDRATED MEAT.
AD-629 306 FLD. 6/8

•ANDREWS, TIMOTHY D.
• • •
CARBAMETALLIC BORON HYDRIDE DERIVATIVES.II. APPARENT ANALOGS OF PI-C5H5MN(CO)3 ANDPI-C5H5RE(CO)3,
AD-629 389 FLD. 7/2

•ANDREW, A. M.
• • •
AUTOMATIC ADJUSTMENT IN A CONTINUOUSENVIRONMENT,
AD-629 598 FLD. 9/2

•ANTELMAN, GORDON R.
• • •
SURVEILLANCE PROBLEMS: WIENER PROCESSES,
AD-629 673 FLD. 12/2

•APGAR, G. M.
• • •
DESIGN, FABRICATION AND TESTING OF SEALED,RECHARGEABLE SILVER-CADMIUM CELLS.
AD-629 410 FLD. 10/3

•APPLE, R. E.
• • •
ECONOMIC CONSIDERATIONS IN ESTABLISHING ANOVERHAUL CYCLE FOR SHIPS: AN EMPIRICALANALYSIS,
AD-629 789 FLD. 13/10

•APTER, ETHEL E.
• • •
THE OMBUDSMAN CONCEPT AS REFLECTED IN THEINSPECTORS GENERAL, UNITED STATES ARMY ANDAIR FORCE.
AD-629 648 FLD. 5/4

•ARMSTRONG, RALPH W.
• • •
IMPROVEMENT IN ACCURACY OF THE ML-419RADIOSONDE TEMPERATURE ELEMENT FOR HEIGHTSABOVE 80,000 FEET AND UP TO 190,000 FEET.
AD-629 859 FLD. 4/1

•ARUNASALAM, V.
• • •
MICROWAVE SCATTERING DUE TO ACOUSTICION-PLASMA-WAVE INSTABILITY,
AD-629 356 FLD. 20/9

•ATHANS, MICHAEL
• • •
GRADIENT MATRICES AND MATRIX CALCULATIONS.
AD-629 426 FLD. 12/1

•ATKINSON, A. L.
• • •
MEASUREMENT OF THE GRUENEISEN PARAMETERAND THE INTERNAL ENERGY DEPENDENCE OF THESOLID EQUATION OF STATE FOR ALUMINUM ANDTEFLON.
AD-629 320 FLD. 20/13

•AVERY, O. E.
• • •
PROTON MAGNETOMETER TEST ON BOARD A SURVEYAIRCRAFT,
AD-629 281 FLD. 8/14

•AZERNIKOV, V.
• • •
SOVIET SCIENTISTS HAVE SUCCESSFULLYRECONSTRUCTED PROTEIN FROM BACTERIOPHAGE,
AD-629 569 FLD. 6/13

•BACCELLI, G.
• • •
PRESSOCEPTIVE AND CHEMOCEPTIVE AORTICREFLEXES IN DECORTICATE AND IN DECEREBRATECATS,
AD-629 892 FLD. 6/16

•BACON, JOHN W., JR.
• • •
INVESTIGATION OF METHODS FOR RE-ESTABLISHMENT OF A LAMINAR BOUNDARY LAYER FROMTURBULENT FLOW.
AD-629 988 FLD. 20/4

•BAHRICK, HARRY P.
• • •
TIME, UNCERTAINTY, AND INCENTIVE VARIABLESIN COMPOSITE TASK PERFORMANCE.
AD-629 830 FLD. 5/8

•BAILEY, W. G.
• • •
PRODUCTION ENGINEERING MEASURE FORCAPACITORS, FEED-THROUGH, SOLID ELECTROLYTETANTALUM PELLET.
AD-629 513 FLD. 9/1

•BAKER, H. R.
• • •
SURFACE CHEMICAL METHODS OF DISPLACINGWATER AND/OR OILS AND SALVAGING FLOODEDEQUIPMENT. PART V. FIELD EXPERIENCE INREMOVING SEA-WATER SALT RESIDUES, SAND, DUST,AND SOLUBLE CORROSIVE PRODUCTS FROM AN/FPS16(XN-1) MISSILE- AND SATELLITE-TRACKING RADAR.
AD-629 293 FLD. 13/8
• • •
FACTORS AFFECTING THE ICING RESISTANCE OFLUBRICANTS FOR AIRCRAFT ORDNANCE.
AD-629 594 FLD. 11/8

•BAKER, JACK LESLIE
• • •
EFFECT OF GEOMETRY ON LOCAL CONVECTIVECOEFFICIENTS FOR AN UNBAFFLED CIRCULAR FINASSEMBLY.
AD-629 696 FLD. 20/13

•BALDWIN, G. C.
• • •
TIME-OF-FLIGHT SPECTROMETER.
AD-629 829 FLD. 14/2

•BALDWIN, M. A.
• • •
GLASS-COATED TUNGSTEN MICROELECTRODES,
AD-629 393 FLD. 9/1

•BALLARD, N.
• • •
ELECTRODEPOSITED MAGNETIC FILM DEVELOPMENT.
AD-629 530 FLD. 9/1

•BANNARD, R. A. B.

• • •
PAPER CHROMATOGRAPHY OF SOME AMINEHYDROCHLORIDES AND ACETATES IN ACIDIC SOLVENTSYSTEMS,
AD-629 299 FLD. 7/3

•BANZET, L.
• • •
ELECTRODEPOSITED MAGNETIC FILM DEVELOPMENT.
AD-629 930 FLD. 9/1

•BARAN, PAUL
• • •
COMMUNICATIONS, COMPUTERS AND PEOPLE,
AD-629 931 FLD. 9/2

•BARBER, W. C.
• • •
BEAM INSTABILITIES IN THE PRINCETONSTANFORD STORAGE RINGS,
AD-629 271 FLD. 20/8

•BARCILON, ALBERT I.
• • •
SECONDARY FLOW IN A VISCOUS VORTEX,
AD-629 580 FLD. 20/4

•BARKER, RAOUL STANLEY
• • •
A METHOD OF MONITORING THE CARDIACBEHAVIOR OF PHOLIS GUNNELLUS (LINNAEUS).
AD-629 699 FLD. 6/3

•BARNETT, G. O.
• • •
CALIBRATION OF ELECTROMAGNETIC FLOWMETERSFOR BLOOD FLOW MEASUREMENT,
AD-629 622 FLD. 6/12

•BARON, L. S.
• • •
GENETIC MAPPING OF VI AND SOMATIC ANTIGENICDETERMINANTS IN SALMONELLA,
AD-629 983 FLD. 6/13

•BARRICK, PAUL L.
• • •
EXPERIMENTAL PROGRAM TO DETERMINE THETHERMODYNAMIC PROPERTIES OF SOLUTIONSLIQUEFIED LIGHT GASES.
AD-629 542 FLD. 20/13

•BARRY, KEVIN G.
• • •
PERITONEAL FLUID ABSORPTION. I. EFFECT OFDEHYDRATION ON KINETICS,
AD-629 343 FLD. 6/16

•BARTLETT, H. E.
• • •
STUDY OF SPECIAL BEAMSHAPING ANTENNAS.
AD-629 609 FLD. 9/5

•BARTLETT, PAUL D.
• • •
ASPECTS OF THE CHEMISTRY OF PERESTERS,
AD-629 916 FLD. 7/3

•BASHARA, N. M.
• • •
ERROR IN DIELECTRIC-FILM ELLIPSOMETERDETERMINATIONS DUE TO NEGLECT OF FILMABSORPTION,
AD-629 341 FLD. 20/6

•BAUER, R. J.
• • •
DIODE, MILLIMETER WAVE TYPE MIXER (3.2 MM).
AD-629 512 FLD. 9/5

•BAXTER, R. D.
• • •
HIGH-MOBILITY LOW-MELTING-POINT GROUP III-VCOMPOUND SEMICONDUCTORS.
AD-629 562 FLD. 20/12

•BAYLESS, OVID LYNDAL
• • •
A PERT INFLUENCED REFLECTIVE THINKINGAPPROACH TO PROBLEM-SOLVING DISCUSSION.
AD-629 670 FLD. 5/10

•BAYLEY, DONALD S.
• • •
PUMPED TRANSFORMER LASERS.
AD-629 481 FLD. 20/5

•BEAN, K. E.
• • •
RESEARCH INVESTIGATIONS IN THE PHYSICALCHEMISTRY AND METALLURGY OF SEMICONDUCTINGMATERIALS.
AD-629 251 FLD. 20/12

•BEARMAN, RICHARD J.
• • •
NUMERICAL SOLUTIONS OF THE PERCUS-YEVICKEQUATION FOR THE HARD-SPHERE POTENTIAL,
AD-629 327 FLD. 20/4
• • •
RADIAL DISTRIBUTION FUNCTIONS FOR MIXTURESOF HARD SPHERES,
AD-629 328 FLD. 20/4

•BECKER, AARON J.
• • •
A FEASIBILITY STUDY TO INCREASE THE ACTIVITYOF OXIDES WITH OXYGEN AND TO LOWER THEIGNITION TEMPERATURE OF SLURRY METALS.
AD-629 590 FLD. 21/9.2

•BECKER, ELMER L.
• • •
USE OF HEPARIN IN DISTINGUISHING PLASMAKALLIKREIN FROM PF/DIL,
AD-629 401 FLD. 6/5

•BEEMAN, D. E.
• • •
MAGNETOSTATIC MODES IN ANTIFERROMAGNETSAND CANTED ANTIFERROMAGNETS,
AD-629 449 FLD. 20/3

•BEER, A. C.
• • •
HIGH-MOBILITY LOW-MELTING-POINT GROUP III-VCOMPOUND SEMICONDUCTORS.
AD-629 562 FLD. 20/12

•BELLMAN, R. H.
• • •
APPLICATION OF OPTICAL FABRICATIONTECHNIQUES TO THE FABRICATION AND DEVELOPMENT OF FLUID AMPLIFIERS AND FLUID CIRCUITS.
AD-629 773 FLD. 13/7

•BELL, C. D.
• • •
INVESTIGATION OF PROBLEMS ENCOUNTERED INWAVE INTERACTION EXPERIMENTS AT HIGH POWER.
AD-629 847 FLD. 20/14

•BELL, J. E.
• • •
HYBRID COMPUTATION OF TRANSIENT RADIATIONEFFECTS ON ELECTRONICS.
AD-629 559 FLD. 18/8

•BENDINELLI, RALPH A.
• • •
LABORATORY DESIGN, ANALYSIS, AND FIELDCONTROL OF GROUTING MIXTURES EMPLOYED ATA NUCLEAR TEST IN SALT.
AD-629 529 FLD. 18/3

•BENOIT, FREDERICK L.
• • •
RADIOTHYROXINE TURNOVER IN OBESITY.
AD-629 334 FLD. 6/5
• • •
MYOGLOBINURIA AND PERSISTENCE OF FETALMYOGLOBIN.
AD-629 340 FLD. 6/5

•BENOIT, F. L.
• • •
GOODPASTURE'S SYNDROME. A CLINICOPATHOLOGICENTITY.
AD-629 339 FLD. 6/5

•BERGER, N. N.
• • •
PARAMETRIC PRESENTATION OF COVERAGE DATAFOR POLAR VEHICLES,
AD-629 632 FLD. 22/3

•BERGSTROM, E. W.
• • •
IMPROVEMENT IN COMPRESSION SET RESISTANCEOF ELASTOMERIC VULCANIZATES USING CADMIUMOXIDE.
AD-629 744 FLD. 11/10

•BERKOVITS, S.
• • •
ON MAPPINGS FOR MODULAR ARITHMETIC, II.
AD-629 489 FLD. 9/2

•BERNEY, C. V.
• • •
SF4 AND SOF2: INFRARED EVIDENCE FOR DIMERFORMATION AT LOW TEMPERATURES,
AD-629 402 FLD. 7/2

•BERNHARD, F. G.
• • •
MICROELECTRONIC POWER SUPPLIES.
AD-629 838 FLD. 10/2

•BERRY, B. M.
• • •
INTEGRATED SILICON DEVICE TECHNOLOGY.VOLUME IX. EPITAXY.
AD-629 520 FLD. 9/1

•BETTEY, DAVID S.
• • •
EXPERIMENTAL MECHANICAL TIMER WITHDETATCHED LEVER ESCAPEMENT AND DIGITALREADOUT SYSTEM,
AD-629 746 FLD. 14/2

•BEYER, S. J.
• • •
MACHINING HIGH PURITY ALUMINA.
AD-629 484 FLD. 13/8

•BIEDERMANN, GEORGE
• • •
STUDIES ON THE HYDROLYSIS OF METAL IONS.PART 50. THE HYDROLYSIS OF THE YTTRIUM(III) ION,Y(3+),
AD-629 329 FLD. 7/2

•BIRCHALL, T.
• • •
NUCLEAR MAGNETIC RESONANCE SPECTROSCOPY OFSOME SELENIUM COMPOUNDS,
AD-629 331 FLD. 7/4

•BLACK, HAROLD D.
• • •
A PASSIVE SYSTEM FOR DETERMINING THEATTITUDE OF A SATELLITE,
AD-629 479 FLD. 22/1

•BLACK, JOHN W.
• • •
PREDICTING THE INTELLIGIBILITY OF WORDS III.
AD-629 256 FLD. 5/10

•BLACK, WILLIAM L.
• • •
LES-4 SPIN AXIS ORIENTATION SYSTEM.

AD-629 358 FLD. 22/2

•BLAKE, HU A.
• • •
ANOMALOUS PULMONARY VENOUS RETURN,
AD-629 260 FLD. 6/5

•BLATT, WILLIAM F.
• • •
TISSUE LACTIC DEHYDROGENASE ISOZYMES:VARIATION IN RATS DURING PROLONGED COLDEXPOSURE,
AD-629 796 FLD. 6/19

•BLUMBERG, JOE M.
• • •
NEW EVIDENCE FOR EXCESSIVE ACCUMULATION OFZ-BAND MATERIAL IN NEMALINE MYOPATHY,
AD-629 806 FLD. 6/5

•BLUSTON, HARRY S.
• • •
AN EXPERIMENTAL STUDY OF THE TURBULENTMIXING OF A SUBSONIC AND A SUPERSONIC JET INA CLOSED DUCT,
AD-629 951 FLD. 20/4

•BODEN, BRIAN P.
• • •
AN ASPECT OF EUPHAUSIID ECOLOGY REVEALEDBY ECHO-SOUNDING IN A FJORD,
AD-629 420 FLD. 8

•BOGORODITSKAYA, V. P.
• • •
CONCERNING THE HYGIENIC STUDY OF ENZYMEPREPARATIONS PRODUCED BY MICROFUNGI ANDTHEIR POSSIBLE USE IN THE FOOD INDUSTRY,
AD-629 985 FLD. 6/8

•BOGUSH, ALFRED J. , JR.
• • •
SIMULATION OF RADAR BACKSCATTERING IN ARIPPLE TANK.
AD-629 723 FLD. 20/14

•BOLLE, D. M.
• • •
ZERO-CUTOFF MODE IN DIELECTRIC-LOADEDCOAXIAL WAVEGUIDE,
AD-629 617 FLD. 9/1

•BOLSTER, R. N.
• • •
FACTORS AFFECTING THE ICING RESISTANCE OFLUBRICANTS FOR AIRCRAFT ORDNANCE.
AD-629 599 FLD. 11/8

•BOMMELAND, H. E.
• • •
SUPERCONDUCTIVITY IN THE ARTIFICIAL METALS:METALLIC INDIUM ANTIMONIDE, THE INDIUM-ANTIMONIDE-TIN ALLOYS, AND METALLIC INDIUMTELLURIDE,
AD-629 376 FLD. 20/12

•BONFIGLIOLI, G.
• • •
SELF MODULATING DERIVATIVE OPTICALSPECTROSCOPY. PART 2: EXPERIMENTAL.
AD-629 769 FLD. 20/6

•BORDEN, GAIL J.
• • •
GEOGRAPHIC ORIENTATION IN AIRCRAFT PILOTS:METHODOLOGICAL ADVANCEMENT.
AD-629 616 FLD. 1/2

•BORKOWITZ, DAVID A.
• • •
OPTICAL AND ELECTRO-OPTICAL INFORMATIONPROCESSING,
AD-629 812 FLD. 9/2

•BOTTO, DAVID CHANDLER
• • •
A MATHEMATICAL DECISION MAKING APPROACH TOTHE CONTROL OF INTERNATIONAL CONFLICT.
AD-629 650 FLD. 5/9

•BOUMAN, MAARTEN A.
• • •
CORTICAL CONTROL OF EYE MOVEMENTS ANDVISUAL THRESHOLD.
AD-629 790 FLD. 6/16

•BOWERS, H. M.
• • •
A SIMPLIFIED METHOD OF PRELIMINARY DESIGNDRAG ESTIMATES FOR BALLISTIC MISSILES.
AD-629 321 FLD. 16/2

•BOWIE, DONALD R.
• • •
SAMPLING PROGRAM FOR AIRBORNERADIOACTIVITY,
AD-629 516 FLD. 18/9

•BRADLEY, S. G.
• • •
THE LIFE-CYCLE OF AN ACTINOPHAGE FORSTREPTOMYCES VENEZUELAE,
AD-629 429 FLD. 6/13

•BRAINARD, ROBERT W.
• • •
EVALUATION OF AN IMAGE QUALITYENHANCEMENT TECHNIQUE.
AD-629 470 FLD. 14/5

•BRAINE, MARTIN D. S.
• • •
INFERRING A GRAMMAR FROM RESPONSES:DISCUSSION OF GOUGH AND SEGAL'S COMMENT,
AD-629 249 FLD. 5/10

•BRENT, J. H., JR.
• • •
DESIGN, FABRICATION AND TESTING OF VENTED,RECHARGEABLE SILVER-CADMIUM CELLS.
AD-629 407 FLD. 10/3

•BRIET, G.
• • •
A SOLUBLE SEMICLASSICAL PARTICLE TRANSFERPROBLEM,
AD-629 638 FLD. 20/8

•BRILING, K. K.
• • •
MAGNETIC OPERATIONAL MEMORY DEVICE OF ANINFORMATION-LOGICAL MACHINE,
AD-629 853 FLD. 9/2

•BRILLOUIN, L.
• • •
THE ACTUAL MASS OF POTENTIAL ENERGY, A CORRECTION TO CLASSICAL RELATIVITY,
AD-629 417 FLD. 20/10
• • •
THE ACTUAL MASS OF POTENTIAL ENERGY, II,
AD-629 418 FLD. 20/10

•BROCKELMAN, RICHARD A.
• • •
RADIO ECHO OBSERVATIONS OF VENUS ANDMERCURY AT 23 CM WAVELENGTH,
AD-629 731 FLD. 3/1

•BROCK, PAUL
• • •
A PROBLEM EMANATING FROM A STUDY OFFEEDBACK LOOPS IN STOCHASTIC NETWORKS,
AD-629 817 FLD. 12/1

•BRODSKY, GERRY
• • •
INTER-PHASE TIME INTERVALS IN SEWARD'SLATENT LEARNING EXPERIMENT,
AD-629 296 FLD. 5/10

•BRONSON, EARL D.
• • •
FLIP FLOATING INSTRUMENT PLATFORM,
AD-629 601 FLD. 13/10

•BROVETTO, P.
• • •
SELF MODULATING DERIVATIVE OPTICALSPECTROSCOPY. PART 2: EXPERIMENTAL.
AD-629 769 FLD. 20/6

•BROWN, GEORGE A.
• • •
RESEARCH ON NEW CONCEPTS IN ENERGYCONVERSION.
AD-629 736 FLD. 10/2

•BROWN, ROBERT C.
• • •
ATPICAL MYCOBACTERIA AND HUMAN DISEASE-AREVIEW,
AD-629 809 FLD. 6/13

•BROWN, SANBORN C.
• • •
MICROWAVE SCATTERING DUE TO ACOUSTICION-PLASMA-WAVE INSTABILITY,
AD-629 396 FLD. 20/9

•BRYAN, JOSEPH G.
• • •
PREDICTION OF REENLISTMENT USING REGRESSIONESTIMATION OF EVENT PROBABILITIES (REEP).
AD-629 786 FLD. 5/9

•BRYUKHANOV, B. N.
• • •
CERTAIN RESULTS OF INVESTIGATION OF ACENTRIPETAL GAS TURBINE WITH NOZZLEADJUSTMENT,
AD-629 767 FLD. 21/5

•BUHL, ALBERT
• • •
VAPORIZATION CATALYSIS. THE DECOMPOSITIONOF GALLIUM NITRIDE,
AD-629 384 FLD. 7/4

•BURCH, DARRELL E.
• • •
ABSORPTION BY CO2 BETWEEN 6600 AND7125/CM (1.4 MICRON REGION).
AD-629 568 FLD. 3/3

•BURNS, L. L.
• • •
CRYOELECTRIC RANDOM ACCESS MEMORY, PHASE III.
AD-629 606 FLD. 9/2

•BUSCA, G.
• • •
SELF MODULATING DERIVATIVE OPTICALSPECTROSCOPY. PART 2: EXPERIMENTAL.
AD-629 769 FLD. 20/6

•BUSHMAN, J. B.
• • •
DETECTION OF AN ENZOOTIC PLAGUE FOCUS BYSEROLOGICAL METHODS.
AD-629 390 FLD. 6/5

•CAGE, GARY W.
• • •
FURTHER STUDIES ON THE HUMAN ECCRINE SWEATGLAND.
AD-629 409 FLD. 6/16

•CALLEN, EARL
• • •
THE PRESENT STATUS OF THE TEMPERATUREDEPENDENCE OF MAGNETOCYRSTALLINE ANISOTROPY,AND THE L(L+1)/2 POWER LAW.
AD-629 718 FLD. 20/3

•CALLEN, HERBERT

• • •
THE PRESENT STATUS OF THE TEMPERATUREDEPENDENCE OF MAGNETOCYRSTALLINE ANISOTROPY,AND THE L(L+1)/2 POWER LAW.
AD-629 718 FLD. 20/3

• • •
A WICK'S THEOREM FOR SPIN OPERATORS, WITHAN APPLICATION TO SPIN WAVES IN ANTIFERROMAGNETS.
AD-629 720 FLD. 20/3

• • •
THERMODYNAMIC PROPERTIES OF SPIN IMPURITIESIN HEISENBERG FERROMAGNETS.
AD-629 721 FLD. 20/3

*CAMERON, JOHN L.
• • •
BILIRUBIN-CARBON-14 METABOLISM IN ISOLATEDINTESTINAL LOOPS,
AD-629 915 FLD. 6/5

*CANFIELD, CRAIG J.
• • •
REFRACTORY HEMOLYTIC DISEASE ASSOCIATED WITHGLUCOSE-6-PHOSPHATE DEHYDROGENASEDEFICIENCY AND HEMOSIDEROSIS: REPORT OF ACASE,
AD-629 345 FLD. 6/5

*CARPENTER, GENE B.
• • •
X-RAY STUDIES OF SIMPLE CRYSTALS.
AD-629 939 FLD. 20/2

*CARTER, MARY KATHLEEN
• • •
IONIC FACTORS IN TOXIC ACTION.
AD-629 992 FLD. 6/19

*CASSELMAN, A. A.
• • •
PAPER CHROMATOGRAPHY OF SOME AMINEHYDROCHLORIDES AND ACETATES IN ACIDIC SOLVENTSYSTEMS,
AD-629 249 FLD. 7/3

*CASTELLOT, JOHN J.
• • •
PERITONEAL FLUID ABSORPTION. I. EFFECT OFDEHYDRATION ON KINETICS,
AD-629 343 FLD. 6/16

*CATALANO, JOHN F.
• • •
DETECTION IN A HOMOGENOUS VISUAL FIELDUNDER A CONDITION OF INFINITE DEPTH OF FOCUS,
AD-629 531 FLD. 5/9

*CAUM, KENNETH B.
• • •
EVALUATION OF AN IMAGE QUALITYENHANCEMENT TECHNIQUE.
AD-629 470 FLD. 14/5

*CAVANAUGH, D. C.
• • •
DETECTION OF AN ENZOOTIC PLAGUE FOCUS BYSEROLOGICAL METHODS,
AD-629 350 FLD. 6/5

*CAVELL, WINSTON B.
• • •
A SURVEY OF SOME OF THE RECENT APPLICATIONSOF PYROTECHNICS TO SMALL ARMS AMMUNITIONAND MILD DETONATING FUSE SYSTEMS.
AD-629 607 FLD. 19/1

*CHADBOURNE, H. L.
• • •
TECHNICAL REPORTS FOR QUICK READERCOMPREHENSION,
AD-629 998 FLD. 5/2

*CHAFFEY, C. E.
• • •
PARTICLE MOTIONS IN SHEARED SUSPENSIONS.XVI. ORIENTATIONS OF RODS AND DISKS INHYPERBOLIC AND OTHER FLOWS,
AD-629 249 FLD. 7/4

*CHARNES, A.
• • •
MANAGEMENT SCIENCES AND MANAGEMENT-SOME REQUIREMENTS FOR FURTHER DEVELOPMENT.
AD-629 729 FLD. 5/1

*CHERNETS, A. N.
• • •
CONVERTER OF ELECTROMAGNETIC WAVES INTOHYPERSONIC WAVES,
AD-629 849 FLD. 20/1

*CHERNOV, YU. A.
• • •
METHOD OF SHORT-WAVE RADIO COMMUNICATIONTHROUGH THE POLAR ZONE,
AD-629 859 FLD. 17/2.1

*CHERVENAK, J.
• • •
MEASUREMENTS ON ONE AND TWO LINES OFFREE-FLOODED MAGNETOSTRICTIVE RINGTRANSDUCERS.
AD-629 709 FLD. 20/1

*CHODOROW, M.
• • •
MICROWAVE RESEARCH.
AD-629 967 FLD. 20/5

*CHRISTIAN, GARY D.
• • •
COULOMETRIC GENERATION OF MOLYBDENUM(V),
AD-629 398 FLD. 7/2

*CHURCHILL, N. C.
• • •
PROPOSED RESEARCH ON MANAGEMENT INFORMATION SYSTEMS.
AD-629 730 FLD. 5/1

*CIAVATTA, LIBERATO
• • •
STUDIES ON THE HYDROLYSIS OF METAL IONS.PART 90. THE HYDROLYSIS OF THE YTTRIUM(III) ION,Y(3+),
AD-629 329 FLD. 7/2

*CLAPP, LEWIS C.
• • •
OPTICAL AND ELECTRO-OPTICAL INFORMATIONPROCESSING,
AD-629 812 FLD. 9/2

*CLARK, ANDREW J.
• • •
AN ANALYSIS OF THE INVENTORY RANGE PROBLEM,
AD-629 292 FLD. 15/5

*CLARK, O. M.
• • •
TEMPERATURE DEPENDENCE OF THE INFRAREDSPECTRA OF SELECTED DIELECTRICS.
AD-629 896 FLD. 11/7

*CLEMENT, EUGENE P.
• • •
MERIT COMPARISONS OF THE SERIES 64 HIGHSPEED DISPLACEMENT HULL FORMS.
AD-629 688 FLD. 13/10

*COCHRAN, W. L.
• • •
APPLICATION OF OPTICAL FABRICATIONTECHNIQUES TO THE FABRICATION AND DEVELOPMENT OF FLUID AMPLIFIERS AND FLUID CIRCUITS.
AD-629 779 FLD. 13/7

*COFFIN, L. F., JR.
• • •
INVESTIGATION OF THE NATURE OF STRUCTURALDAMAGE IN METAL-FORMING PROCESSES.
AD-629 287 FLD. 13/8

*COHEN, MITCHELL S.
• • •
THE LORENTZ FORCE,
AD-629 723 FLD. 20/3

*COLE, LEONARD J.
• • •
HOMOGRAFT RESPONSE AND HEMAGGLUTININPRODUCTION BY SENSITIZED THYMECTOMIZEDIRRADIATED ADULT MICE,
AD-629 985 FLD. 6/18

*COLOSIMO, DONALD D.
• • •
THE EFFECTS OF MASS-TRANSFER ON THEDYNAMIC STABILITY OF SLENDER CONES.
AD-629 933 FLD. 20/4

*COMSTOCK, W. R.
• • •
A PRODUCT ENGINEERING MEASURE FOR THEIMPROVEMENT OF PRODUCTION TECHNIQUES TOINCREASE THE RELIABILITY AND TO IMPROVEPRODUCT CAPABILITY OF HIGH VOLTAGE MINIATURESILICON RECTIFIERS.
AD-629 858 FLD. 9/1

*CONANT, NORMAN F.
• • •
ACTIVE IMMUNIZATION VS. COCCIDIOIDES IMMITIS.
AD-629 911 FLD. 6/13

*CONNELLY, JAMES J.
• • •
STUDY OF PROGRAMMING DOCUMENTATION STANDARDS AND SPECIFICATIONS.
AD-629 921 FLD. 9/2

*CONN, A.
• • •
PRODUCTION ENGINEERING MEASURE. HIGHVOLTAGE SILICON RECTIFIER STACKS.
AD-629 983 FLD. 9/1

*CONRAD, MARCEL E.
• • •
REFRACTORY HEMOLYTIC DISEASE ASSOCIATED WITHGLUCOSE-6-PHOSPHATE DEHYDROGENASEDEFICIENCY AND HEMOSIDEROSIS: REPORT OF ACASE,
AD-629 345 FLD. 6/5

*COOK, CURTIS G.
• • •
THE B-70, A CHAPTER IN DEFENSE POLICY.
AD-629 679 FLD. 15/3

*COOPER, W. W.
• • •
MANAGEMENT SCIENCES AND MANAGEMENT-SOME REQUIREMENTS FOR FURTHER DEVELOPMENT.
AD-629 729 FLD. 5/1

*COSDEN, T. H.
• • •
AN ATLAS OF THE ABSORPTION OF THE ATMOSPHEREFROM 8512 TO 11, 600A.
AD-629 323 FLD. 4/1

*COTE, A. J., JR.
• • •
THE TUNNEL JUNCTION NEURISTOR.
AD-629 990 FLD. 9/1

*COVER, T.
• • •
NOTES ON CLASSIFICATION CAPACITIES.
AD-629 937 FLD. 9/2

•CRAFTON, P. A.
• • •
DIRECTIONAL EQUILIBRIUM OF AN ARTIFICIALSATELLITE ENVELOPING A NONUNIFORM REGIONOF A GRAVITATIONAL FIELD.
AD-624 592 FLD. 22/2

•CRAIG, RICHARD A.
• • •
THE DYNAMICS OF STRATOSPHERIC CIRCULATIONS.
AD-624 541 FLD. 4/1

•CRANNELL, CLARKE W.
• • •
GROUP PERFORMANCE AS A FUNCTION OF SIZE,STRUCTURE, AND TASK DIFFICULTY,
AD-624 322 FLD. 5/10

•CRAPO, L. M.
• • •
STUDY OF COLLISION NARROWING BY COMPARISONOF MOLECULAR-BEAM AND GAS-PHASE NUCLEARRESONANCE SPECTRA,
AD-624 517 FLD. 7/4

•CRAWFORD, ANNE L.
• • •
THE EFFECT OF GLUCAGON ON BLOOD SUGARAND INORGANIC PHOSPHORUS LEVELS IN NORMOTHERMIC AND HYPOTHERMIC RATS.
AD-624 399 FLD. 6/16

•CREANGE, JOHN E.
• • •
STIMULATION OF STEROID C-11-BETA AND C-18HYDROXYLATIONS IN RAT ADRENAL HOMOGENATESBY ADENOSINE 3', 5'-PHOSPHATE VIA A MECHANISMNOT REQUIRING ENDOGENOUS PRECURSOR, GLYCOGEN PHOSPHORYLATION OR NADPH GENERATION,
AD-624 412 FLD. 6/1

•CRISTOL, STANLEY J.
• • •
BRIDGED POLYCYCLIC COMPOUNDS. XXVIII. THEPROTON MAGNETIC RESONANCE SPECTRA OF SOMEDIBENZOBICYCLO/3.2.1/OCTADIENES,
AD-624 373 FLD. 7/3

•CROSS, B. T.
• • •
ADVANCEMENT OF ULTRASONIC TECHNIQUESUSING RERADIATED SOUND ENERGIES FOR NONDESTRUCTIVE EVALUATION OF WELDMENTS.
AD-624 262 FLD. 13/8

•CROSS, G. L.
• • •
ADVANCEMENT OF ULTRASONIC TECHNIQUESUSING RERADIATED SOUND ENERGIES FOR NONDESTRUCTIVE EVALUATION OF WELDMENTS.
AD-624 262 FLD. 13/8

•CROTHERS, D.
• • •
EXCITATION OF NEUTRAL ATOMS BY ELECTRONIMPACT,
AD-624 278 FLD. 20/8

•CRUM, SUZANNE
• • •
PROPOSALS FOR AN ALL REGULAR OFFICER FORCEAS AN AID TO PROCUREMENT AND RETENTION OFQUALIFIED PERSONNEL IN THE UNITED STATES AIRFORCE CAREER OFFICER CORPS.
AD-624 693 FLD. 5/9

•CSIZMADIA, I. G.
• • •
PHOTOLYSIS OF NITRATE ESTERS, II. SOLUTIONPHOTOLYSIS OF ARALKYL NITRATE ESTERS:KINETICS, ESR SPECTRA, AND PHOTOPRODUCTS.
AD-624 406 FLD. 8/1

•CURCIO, J. A.
• • •
AN ATLAS OF THE ABSORPTION OF THE ATMOSPHEREFROM 8912 TO 11, 600A.
AD-624 323 FLD. 4/1

•CURRAN, PATRICK M.
• • •
A STUDY OF SOME DETERMINERS OF PSYCHOLOGICALSTRESS.
AD-624 450 FLD. 5/10

•CURTIS, E. C.
• • •
ON THE NATURE OF UREY-BRADLEY FORCECONSTANTS APPLICATION TO FOUR FIRST ROW IONS,
AD-624 833 FLD. 7/4

•CURTIS, WILLIAM J.
• • •
THE EFFECT OF CONTROLLED ELECTROPHORESISON DEPOSITION OF FLUORIDE ON TOOTH STRUCTURE.
AD-624 680 FLD. 6/5

•DALEY, J. C.
• • •
CHEMOELECTRIC ENERGY CONVERSION FOR NONAQUEOUS RESERVE BATTERIES.
AD-624 811 FLD. 10/3

•DAMIANO, R. P.
• • •
WIDE BAND CRYOGENIC PARAMETRIC AMPLIFIER.
AD-624 549 FLD. 9/1

•DARNELL, A. J.
• • •
SUPERCONDUCTIVITY IN THE ARTIFICIAL METALS:METALLIC INDIUM ANTIMONIDE, THE INDIUM-ANTIMONIDE-TIN ALLOYS, AND METALLIC INDIUMTELLURIDE,
AD-624 376 FLD. 20/12
• • •
ARTIFICIAL METALS: INSB, THE SN ALLOYS WITHINSB, AND METALLIC INTE,
AD-624 377 FLD. 11/6

•DAUNT, JOHN G.
• • •
PROPERTIES OF SOLIDS AT LOW TEMPERATURES.
AD-624 829 FLD. 20/12

•DAVIDS, N.
• • •
TRANSIENT ANALYSIS OF OBLIQUE IMPACT ONPLATES,
AD-624 379 FLD. 20/11

•DAVIS, DONALD R.
• • •
POSITIVE-ION CHEMISTRY: HIGH YIELDS OFHEAVY HYDROCARBONS FROM SOLID METHANE BYIONIZING RADIATION,
AD-624 368 FLD. 8/1

•DAVIS, STEPHEN H.
• • •
A PERTURBATION THEORY FOR NONLINEAR PARTIALDIFFERENTIAL EQUATIONS,
AD-624 808 FLD. 12/1

•DAVYDOV, A. B.
• • •
STUDY OF THE PROPERTIES AND OF THE FEASIBILITYOF USING ORGANOBOROSILICON POLYMERS AS CONSTITUENTS OF HEAT-RESISTANT ADHESIVES,
AD-624 752 FLD. 11/1

•DEBS, ATIF
• • •
INVESTIGATION OF GERMANIUM DIODES FORTHERMO-PHOTOVOLTAIC ENERGY CONVERTORS.
AD-624 313 FLD. 10/1

•DEGRUYL, J. A.
• • •
STUDY OF SOLID-STATE AND TRAVELING-WAVEMASER TECHNIQUES.
AD-624 359 FLD. 20/5

•DELCHAR, T. A.
• • •
CHEMISORPTION ON SINGLE-CRYSTAL PLANES:NITROGEN ON TUNGSTEN,
AD-624 287 FLD. 7/4

•DE MAYO, P.
• • •
THE PHOTOLYSIS OF SOME ALPHA-SUBSTITUTEDCYCLOHEXANONES,
AD-624 250 FLD. 8/1

•DESS, HOWARD M.
• • •
YAG CRYSTALS.
AD-624 596 FLD. 20/2

•DEUTCH, J. M.
• • •
CORRELATION FUNCTIONS IN NUCLEAR RELAXATIONI. ANALYSIS OF RANDOM MOTIONS FROM FIELDDEPENDENCE OF RELAXATION TIMES,
AD-624 352 FLD. 7/4

•DEVLIN, PATRICIA
• • •
A BIBLIOGRAPHY (WITH ABSTRACTS) ON GASLUBRICATED BEARINGS.
AD-624 288 FLD. 13/9

•DEVOLDER, N. E.
• • •
A PRODUCT ENGINEERING MEASURE FOR THEIMPROVEMENT OF PRODUCTION TECHNIQUES TOINCREASE THE RELIABILITY AND TO IMPROVEPRODUCT CAPABILITY OF HIGH VOLTAGE MINIATURESILICON RECTIFIERS.
AD-624 858 FLD. 9/1

•DEWART, GILBERT
• • •
SEISMIC RESULTS FOR GNOME AS OBSERVED BYTHE CALTECH NETWORK,
AD-624 547 FLD. 8/11

•DOBSON, RICHARD L.
• • •
FURTHER STUDIES ON THE HUMAN ECCRINE SWEATGLAND.
AD-624 409 FLD. 6/16

•DOGGENWEILER, C. F.
• • •
STAINING PROPERTIES OF LANTHANUM ON CELLMEMBRANES,
AD-624 620 FLD. 6/3

•DOOLAN, P. D.
• • •
GOODPASTURE'S SYNDROME. A CLINICOPATHOLOGICENTITY.
AD-624 339 FLD. 6/5

•DOUGHERTY, D. J.
• • •
CONTACT ANALOG SIMULATOR EVALUATIONS: THEINFLUENCE OF SCREEN SIZE AND IMAGE FIELD OFVIEW.
AD-624 979 FLD. 1/4

•DOW, A. N.
• • •
PROJECT COMPASS: A COMPUTER ASSISTEDCLASSIFICATION SYSTEM FOR NAVY ENLISTED MEN.
AD-624 928 FLD. 5/9

•DRAGG, JAMES L.
• • •

APPLICATIONS OF SPHERICAL HARMONICS TOGEODETIC PROBLEMS,
AD-629 479 FLD. 8/9

•DREESEN, JAMES A.
• • •
HALL EFFECTS, RESISTIVITY, AND THERMOPOWERIN FE AND FE(1-X)NI(X) FOR X=0 TO 0.2,
AD-629 381 FLD. 20/3

•DRENTH, D.
• • •
PARALYZING ANIMAL POISONS.
AD-629 496 FLD. 6/3

•DREZNER, STEPHEN
• • •
A PROBLEM EMANATING FROM A STUDY OFFEEDBACK LOOPS IN STOCHASTIC NETWORKS,
AD-629 817 FLD. 12/1

•DRIENOVSKY, P.
• • •
A PYROLYTIC CELL FOR THE CHROMATOGRAPHICSTUDY OF POLYMERS,
AD-629 891 FLD. 14/2

•DRISKO, R. W.
• • •
PROTECTION OF MOORING BUOYS. PART VII.RESULTS OF SIXTH RATING INSPECTION.
AD-629 799 FLD. 13/10

•DUBOIS, ARTHUR B.
• • •
VENTILATION OF PARTS OF THE LUNG WITHCHEMICALS AND GASES IN AQUEOUS SOLUTION.
AD-629 757 FLD. 6/16

•DUBOV, A. S.
• • •
DETERMINATION OF VERTICAL WIND GUSTS ON THEBASIS OF OSCILLATIONS OF AIRCRAFT IN FLIGHTWITH THE PILOT'S ACTION ON CONTROL LEVERSTAKEN INTO ACCOUNT,
AD-629 759 FLD. 1/1

•DUFF, DONALD F.
• • •
BODY-BUFFER ZONE. EXPLORATION OF PERSONALSPACE.
AD-629 337 FLD. 5/10

•DUNCAN, J. F.
• • •
MOSSBAUER STUDIES OF CHEMICAL BONDING,
AD-629 363 FLD. 8/1

•DUPEE, NORMAN ENGLISH, III.
• • •
A STUDY OF AXISYMMETRIC TRANSONIC FLOWUSING THE METHOD OF PARAMETRIC DIFFERENTIATION.
AD-629 683 FLD. 20/4

•DURRANCE, FREDERICK Y.
• • •
RADIOTHYROXINE TURNOVER IN OBESITY.
AD-629 339 FLD. 6/5

•DUTTA, NIRMAL K.
• • •
INTESTINAL MANIFESTATIONS OF CHOLERA ININFANT RABBITS: A MORPHOLOGIC STUDY,
AD-629 349 FLD. 6/5

•DYUBYUK, N. E.
• • •
CONCERNING THE HYGIENIC STUDY OF ENZYMEPREPARATIONS PRODUCED BY MICROFUNGI ANDTHEIR POSSIBLE USE IN THE FOOD INDUSTRY,
AD-629 585 FLD. 6/8

•ECKARDT, R.
• • •
AN ATLAS OF THE ABSORPTION OF THE ATMOSPHEREFROM 8512 TO 11, 600A.
AD-629 329 FLD. 4/1

•EDELEN, DOMINIC G. B.
• • •
RADIATIVE TRANSPORT AND THE CALCULUS OFVARIATIONS, I: THE INVARIANT VARIATIONALPRINCIPLE AND NORMAL INITIAL AND BOUNDARYDATA,
AD-629 777 FLD. 12/1

•EDWARDS, ALAN MILLER
• • •
THE EFFECTS OF PLASTICITY ON THE BUCKLINGAND POSTBUCKLING OF CIRCULAR CYLINDRICALSHELLS.
AD-629 660 FLD. 20/13

•EGEBERG, L. E.
• • •
HYDRA PROGRAM, A SHORT-RANGE TELEMETERINGROCKET FOR MEASUREMENT OF UNDERWATERNUCLEAR-BURST PLUME RADIATION.
AD-629 897 FLD. 18/9

•EGGLESTON, L. A.
• • •
A STUDY OF THE USAF SCHOOL OF AEROSPACEMEDICINE HUMAN CENTRIFUGE.
AD-629 946 FLD. 14/2

•EHRLICH, GERT
• • •
CHEMISORPTION ON SINGLE-CRYSTAL PLANES:NITROGEN ON TUNGSTEN,
AD-629 287 FLD. 7/4

•ELBE, G. VON
• • •
RESEARCH ON THE DEFLAGRATION OF HIGH-ENERGYSOLID OXIDIZERS.
AD-629 933 FLD. 21/9.2

•ELLERINGTON, H. R.
• • •
ADVANCEMENT OF ULTRASONIC TECHNIQUESUSING RERADIATED SOUND ENERGIES FOR NONDESTRUCTIVE EVALUATION OF WELDMENTS.
AD-629 262 FLD. 13/8

•ELLINGHAUSEN, H. C.
• • •
MAGNETIC CHARACTERISTICS OF 'NON-MAGNETIC'MATERIALS PERMEABILITY AND COERCIVE FORCEIN STRONG FIELDS 100-200 OERSTEDS,
AD-629 284 FLD. 11/6

•ELLIOTT, R. J.
• • •
THEORIES OF MAGNETISM.
AD-629 792 FLD. 20/3

•ELLIS, CECIL B.
• • •
PUMPED TRANSFORMER LASERS.
AD-629 481 FLD. 20/5

•ELLIS, J. R.
• • •
CALIBRATION OF ELECTROMAGNETIC FLOWMETERSFOR BLOOD FLOW MEASUREMENT,
AD-629 622 FLD. 6/12

•ELROD, H. G. , JR.
• • •
STIFFNESS EFFECTS ON THE INFINITELY WIDE FOILBEARING.
AD-629 827 FLD. 13/9
• • •
ON THE DEFINITION OF STATES IN QUANTUMSTATISTICAL MECHANICS.
AD-629 816 FLD. 20/10

•EMERY, J. H.
• • •
CONTACT ANALOG SIMULATOR EVALUATIONS: THEINFLUENCE OF SCREEN SIZE AND IMAGE FIELD OFVIEW.
AD-629 979 FLD. 1/4

•ENGESSER, FERDINAND C.
• • •
GAMMA RAYS FROM (N, N'GAMMA RAYS) INTERACTIONSOF 2.8 MEV NEUTRONS WITH MAGNESIUM, ALUMINUM,SILICON, TITANIUM AND IRON,
AD-629 497 FLD. 20/8

•ENGLEHARDT, THOMAS O.
• • •
INVESTIGATION AND ANALYSIS OF THE PERFORMANCECHARACTERISTICS AND FLOW CIRCULATION IN ATEST MODEL REGENERATIVE PUMP.
AD-629 652 FLD. 13/11

•ENKE, C. G.
• • •
A STUDY OF THE KINETICS AND MECHANISM OFELECTROLYTIC FILM FORMATION REACTIONS.
AD-629 269 FLD. 7/4

•ENOKI, YASUNORI
• • •
STUDIES ON THE HEMOGLOBIN-OXYGENEQUILIBRIUM.
AD-629 740 FLD. 6/16

•ENZINGER, FRANZ M.
• • •
CLEAR-CELL SARCOMA OF TENDONS ANDAPONEUROSES. AN ANALYSIS OF 21 CASES,
AD-629 258 FLD. 6/5

•EPSTEIN, EDMUND M.
• • •
EFFECTS OF THE CUBAN CRISIS UPON ATTITUDESRELATED TO WAR AND PEACE.
AD-629 793 FLD. 5/10

•ERIAN, FADEL
• • •
INVESTIGATIONS ON REGIONS OF NEGATIVE TURBULENTENERGY-PRODUCTION.
AD-629 302 FLD. 20/4

•ERLEMAN, GERHARD
• • •
SOVIET SPACE EXPLORATION AS VIEWED BY EASTGERMAN SPECIALISTS,
AD-629 978 FLD. 22/1

•ESAH, SAHEH
• • •
DISTRIBUTION IN ALTITUDE OF MOSQUITOES INNORTHERN THAILAND,
AD-629 261 FLD. 6/3

•ESHEL, A.
• • •
STIFFNESS EFFECTS ON THE INFINITELY WIDE FOILBEARING.
AD-629 827 FLD. 13/9

•ESKIN, ARNOLD
• • •
THE EFFECTS OF ENVIRONMENTAL TEMPERATURECHANGES ON THE EKG OF THE SQUIRREL MONKEY(SAIMIRI SCIUREUS),
AD-629 527 FLD. 6/6

•EVANS, JOHN V.
• • •
RADIO ECHO OBSERVATIONS OF VENUS ANDMERCURY AT 23 CM WAVELENGTH,
AD-629 731 FLD. 3/1

•EVANS, MARJORIE W.
• • •
SHOCK INITIATION OF LOW-DENSITY PRESSINGS OFAMMONIUM PERCHLORATE,

AD-629 537 FLD. 19/1

•EVSTIGNEEV, M. I.
• • •
MANUFACTURE OF BASIC COMPONENTS ANDASSEMBLIES OF AIRCRAFT ENGINES.
AD-629 820 FLD. 21/9

•FAIRFIELD, DONALD H.
• • •
MORPHOLOGY OF HIGH LATITUDE GEOMAGNETICDISTURBANCE AND CORRELATIONS WITH SATELLITEMAGNETIC FIELD MEASUREMENTS.
AD-629 319 FLD. 8/14

•FARHA, FLOYD, JR.
• • •
THE PREPARATION AND INFRARED EXAMINATIONOF THE 2-,3-, AND 4-CYANOPYRIDINE COMPLEXESOF COPPER(I), SILVER(I), AND GOLD(I) PERCHLORATES.
AD-629 326 FLD. 7/2

•FARRAR, D. E.
• • •
ECONOMIC CONSIDERATIONS IN ESTABLISHING ANOVERHAUL CYCLE FOR SHIPS: AN EMPIRICALANALYSIS,
AD-629 784 FLD. 13/10

•FAUCHEUX, CLAUDE
• • •
L'APPROCHE CLINIQUE ET EXPERIMENTALE DE LAGENESE DES NORMES CONTRACTUELLES DANSDIFFERENTES CONDITIONS DE CONFLIT ET DEMENACE (CLINICAL AND EXPERIMENTAL APPROACH TO THEORIGIN OF CONTRACTUAL NORMS UNDER DIFFERENT CONDITIONSOF CONFLICT AND THREAT),
AD-629 717 FLD. 5/10

•FAUX, W. H.
• • •
THE RESISTANCE OF HOLLOW GLASS MODELS TOUNDERWATER EXPLOSIONS AT GREAT DEPTHS. II.SPECIAL CONFIGURATIONS,
AD-629 498 FLD. 19/4

•FEALLOCK, JOHN B.
• • •
TIME, UNCERTAINTY, AND INCENTIVE VARIABLESIN COMPOSITE TASK PERFORMANCE.
AD-629 830 FLD. 5/8

•FELDMAN, FREDRIC J.
• • •
THE ATOMIC ABSORPTION SPECTROSCOPY OFCHROMIUM,
AD-629 346 FLD. 7/4
• • •
COULOMETRIC GENERATION OF MOLYBDENUM(V),
AD-629 348 FLD. 7/2

•FELIG, PHILIP
• • •
OBSERVATIONS ON RATS EXPOSED TO A SPACECABIN ATMOSPHERE FOR TWO WEEKS.
AD-629 342 FLD. 6/11

•FERGUSON, H. G.
• • •
THE PHOTOLYSIS OF SOME ALPHA-SUBSTITUTEDCYCLOHEXANONES,
AD-629 250 FLD. 8/1

•FERNANDEZ, LUIS M.
• • •
THE DETERMINATION OF CRUSTAL THICKNESSFROM THE SPECTRUM OF P WAVES.
AD-629 849 FLD. 8/7

•FERRARO, ANTHONY J.
• • •
THE MEASUREMENT OF PHASE AND AMPLITUDERADIO WAVE INTERACTION AT UNIVERSITY PARK,PENNSYLVANIA, FOR APRIL-MAY-JUNE, 1965.
AD-629 393 FLD. 4/1

•FERRARO, A. J.
• • •
INVESTIGATION OF PROBLEMS ENCOUNTERED INWAVE INTERACTION EXPERIMENTS AT HIGH POWER.
AD-629 847 FLD. 20/14

•FERRY, ANDREW P.
• • •
TERATOMA OF THE ORBIT: A REPORT OF TWOCASES,
AD-629 408 FLD. 6/5

•FEUER, HENRY
• • •
RESEARCH IN NITROMONOMERS AND THEIRAPPLICATION TO SOLID SMOKELESS PROPELLANTS.
AD-629 300 FLD. 21/9.2

•FIFE, EARL H., JR.
• • •
THE SERODIAGNOSIS OF EARLY SYPHILIS: HOW TOUTILIZE THE NEWER LABORATORY TESTS,
AD-629 347 FLD. 6/5

•FINKELSTEIN, RICHARD
• • •
INTESTINAL MANIFESTATIONS OF CHOLERA ININFANT RABBITS: A MORPHOLOGIC STUDY,
AD-629 349 FLD. 6/5

•FLINK, A. H.
• • •
THE DATA RECOVERY CENTER TARGET SIMULATOR.
AD-629 362 FLD. 9/2

•FLORY, PAUL J.
• • •
THERMODYNAMIC PROPERTIES OF SOLUTIONS OFHELICAL POLYPEPTIDES,
AD-629 274 FLD. 7/4

•FLORY, P. J.
• • •
SECOND AND FOURTH MOMENTS OF CHAIN MOLECULES,
AD-629 273 FLD. 7/4

•FLYNN, G. W.
• • •
STUDY OF COLLISION NARROWING BY COMPARISONOF MOLECULAR-BEAM AND GAS-PHASE NUCLEARRESONANCE SPECTRA,
AD-629 517 FLD. 7/4

•FOFONOFF, N. P.
• • •
A COMPILATION OF MOORED CURRENT METEROBSERVATIONS, VOLUME I.
AD-629 819 FLD. 8/3

•FOGEL, BERNARD J.
• • •
THE SERODIAGNOSIS OF EARLY SYPHILIS: HOW TOUTILIZE THE NEWER LABORATORY TESTS,
AD-629 347 FLD. 6/5

•FOLKMAN, JON
• • •
A LIMIT THEOREM FOR SUBADDITIVE COLLECTIONSOF SEQUENCES,
AD-629 807 FLD. 12/1

•FORRESTAL, MICHAEL J.
• • •
RESPONSE OF A CYLINDRICAL SHELL TO AN ELASTICWAVE,
AD-629 367 FLD. 20/11

•FORTIER, O. V.
• • •
THE DATA RECOVERY CENTER TARGET SIMULATOR.
AD-629 362 FLD. 9/2

•FOX, BENNETT
• • •
MARKOV RENEWAL PROGRAMMING BY LINEARFRACTIONAL PROGRAMMING,
AD-629 424 FLD. 12/2

•FOX, R. B.
• • •
PHOTODEGRADATION OF HIGH POLYMERS. PARTVII - PHOTOLYSIS OF POLY(N-BUTYL METHACRYLATE)IN VACUUM,
AD-629 303 FLD. 8/1
• • •
PHOTODEGRADATION OF HIGH POLYMERS INSOLUTION. PART II. SOLVENT EFFECTS IN THEPHOTOLYSIS OF POLYSTYRENE.
AD-629 593 FLD. 8/1

•FRANKLIN, R.
• • •
DEVELOPMENT OF A HIGH POWERED ELECTRONMULTIPLIER TUBE.
AD-629 538 FLD. 9/1

•FRANK, H.
• • •
CUT-SET MATRICES AND LINEAR CODES.
AD-629 380 FLD. 9/4

•FREEMAN, ELI S.
• • •
A FEASIBILITY STUDY TO INCREASE THE ACTIVITYOF OXIDES WITH OXYGEN AND TO LOWER THEIGNITION TEMPERATURE OF SLURRY METALS.
AD-629 540 FLD. 21/9.2

•FREEMAN, PETER K.
• • •
REACTIVE INTERMEDIATES IN THE BICYCLO/3.1.0/HEXYL AND BICYCLO/3.1.0/ HEXYLIDENE SYSTEMS.I. THE ACID-CATALYZED ADDITION OF METHANOLAND ACETIC ACID TO BICYCLO/3.1.0/HEXENE-2,
AD-629 369 FLD. 7/3

•FREEMAN, RAOUL J.
• • •
SOME THOUGHTS ON RANGE PLANNING ANDOPERATION,
AD-629 523 FLD. 22/4

•FRENCH, W. G.
• • •
CHEMOELECTRIC ENERGY CONVERSION FOR NONAQUEOUS RESERVE BATTERIES.
AD-629 811 FLD. 10/3

•FRENK, S.
• • •
GLASS-COATED TUNGSTEN MICROELECTRODES,
AD-629 393 FLD. 9/1
• • •
STAINING PROPERTIES OF LANTHANUM ON CELLMEMBRANES,
AD-629 620 FLD. 6/3

•FROST, GEORGE G.
• • •
INVESTIGATION OF 'PREDICTOR' DISPLAYS FORORBITAL RENDEZVOUS, PROGRAM SUMMARY.
AD-629 467 FLD. 22/3

•FUSS, DAVID S.
• • •
DYNAMIC COMPRESSION TESTS ON THIN-SECTIONREINFORCED CONCRETE.
AD-629 770 FLD. 13/3

•FYKE, JAMES ROBERT
• • •

A STUDY OF THE EFFECTS OF DIELECTRIC PLUGLOADING ON SLOT ANTENNAS.
AD-629 682 FLD. 9/5

•GAITO, JOHN
• • •
THE EFFECTS OF AUDITORY STIMULATION ANDMOTOR ACTIVITY ON NUCLEIC ACIDS AND PROTEINS.
AD-629 528 FLD. 5/10
• • •
THE EFFECTS OF CHEMICAL STIMULATION ANDLEARNING ON NUCLEIC ACIDS AND PROTEINS.
AD-629 709 FLD. 5/10

•GALLAGHER, BRIAN D.
• • •
SEMICONDUCTOR DESIGN EFFECTS ON RADIATIONRESISTANCE.
AD-629 509 FLD. 18/8

•GALL, LORRAINE S.
• • •
THE INFLUENCE OF DIET ON THE NORMAL FECALFLORA OF THE CHIMPANZEE.
AD-629 612 FLD. 6/3

•GANAPOLSHII, E. M.
• • •
CONVERTER OF ELECTROMAGNETIC WAVES INTOHYPERSONIC WAVES,
AD-629 849 FLD. 20/1

•GANDELMAN, SH. B.
• • •
METHODS FOR CALCULATING CANNING PRODUCTIONCOSTS; ACCELERATED METHOD FOR DETERMININGMOISTURE IN DRIED VEGETABLES: STUDYING THE USEOF SORBIC ACID IN CANNING FRUIT AND VEGETABLESAND RECONSTITUTION OF VEGETABLES DRIEDBY SUBLIMATION,
AD-629 571 FLD. 6/8

•GANS, MICHAEL J.
• • •
SURFACE WAVES ON ANISOTROPIC SURFACES.
AD-629 602 FLD. 20/14

•GARASI, L.
• • •
RESEARCH OF ION IMPLANTATION DOPINGTECHNIQUES.
AD-629 945 FLD. 20/12

•GARRISON, W. L.
• • •
TRANSPORTATION FORECAST AND PREDICTIONSTUDY,
AD-629 285 FLD. 15/5

•GARTON, W. R. S.
• • •
LINE-REVERSAL MEASUREMENTS OFEXCITATION AND ELECTRON TEMPERATURE IN ASHOCK TUBE.
AD-629 714 FLD. 7/4

•GATOS, HARRY C.
• • •
SOLID STATE RESEARCH.
AD-629 611 FLD. 20/11

•GEORGIEVSKII, G. A.
• • •
PECULIARITIES OF CREATION OF HEAT-RESISTANTFRICTIONAL MATERIALS,
AD-629 760 FLD. 11/4

•GIBSON, GERALD W.
• • •
THE WISWESSER LINE-NOTATION: ANINTRODUCTION.
AD-629 525 FLD. 7/3

•GILLESPIE, R. J.
• • •
NUCLEAR MAGNETIC RESONANCE SPECTROSCOPY OFSOME SELENIUM COMPOUNDS,
AD-629 331 FLD. 7/4

•GLADDEN, JAMES W.
• • •
EVALUATION AND TEST OF A FIVE-COLORELECTROSTATIC PRINTING MACHINE FOR THEREPRODUCTION OF TOPOGRAPHIC MAPS ANDCHARTS.
AD-629 839 FLD. 14/5

•GLASS, R. G., JR.
• • •
SAMPLING AND DIGITIZING OF METEOROLOGICALDATA,
AD-629 627 FLD. 4/2

•GLOSTEN, LARRY R.
• • •
FLIP FLOATING INSTRUMENT PLATFORM,
AD-629 601 FLD. 13/10

•GOEL, NARENDRA S.
• • •
DENATURATION AND RENATURATION OF DNA:I. EQUILIBRIUM STATISTICS OF COPOLYMERICDNA.
AD-629 991 FLD. 6/1

•GOLDBERG, LEO
• • •
ASTROPHYSICAL IMPLICATIONS OFAUTOIONIZATION.
AD-629 713 FLD. 3/2

•GOLDFELD, STEPHEN M.
• • •
NONLINEAR SIMULTANEOUS EQUATIONS: ESTIMATION AND PREDICTION.
AD-629 294 FLD. 5/3

•GOLDING, R. M.
• • •
MOSSBAUER STUDIES OF CHEMICAL BONDING,
AD-629 269 FLD. 8/1

•GOLDSTEIN, A. A.
• • •
DESCENT OF THE BOUNDARY OF A SPHERE,
AD-629 745 FLD. 12/1

•GONZALEZ-ZUBIETA, ROMULO M.
• • •
ON SOME ASPECTS OF INTEGER LINEARPROGRAMMING,
AD-629 393 FLD. 12/2

•GOODALL, ARTHUR L.
• • •
SERGEANTS MAJOR PERSONNEL CONFERENCE.
AD-629 573 FLD. 5/9

•GOODSON, T.
• • •
RESEARCH ON ANALYSIS OF AMINO ACIDS BY GASCHROMATOGRAPHY.
AD-629 469 FLD. 6/1

•GORDON, GERALD B.
• • •
NEW EVIDENCE FOR EXCESSIVE ACCUMULATION OFZ-BAND MATERIAL IN NEMALINE MYOPATHY,
AD-629 806 FLD. 6/5
• • •
THE REFLECTION OF A SHOCK WAVE AT ASURFACE.
AD-629 472 FLD. 20/4

•GRANITO, CHARLES E.
• • •
THE WISWESSER LINE-NOTATION: ANINTRODUCTION.
AD-629 525 FLD. 7/3

•GRANOVSKAYA, YA.
• • •
METHODS FOR CALCULATING CANNING PRODUCTIONCOSTS; ACCELERATED METHOD FOR DETERMININGMOISTURE IN DRIED VEGETABLES: STUDYING THE USEOF SORBIC ACID IN CANNING FRUIT AND VEGETABLESAND RECONSTITUTION OF VEGETABLES DRIEDBY SUBLIMATION,
AD-629 571 FLD. 6/8

•GRANSTROM, M. L.
• • •
REACTIONS OF CHLORINE DIOXIDE AND OTHER OXYCHLORO COMPOUNDS WITH ORGANIC COMPOUNDS.KINETICS OF REACTION BETWEEN CHLORINEDIOXIDE AND PHENOL.
AD-629 316 FLD. 7/3

•GRAVES, GLENN W.
• • •
A COMPLETE CONSTRUCTIVE ALGORITHM FOR THEGENERAL MIXED LINEAR PROGRAMMING PROBLEM,
AD-629 676 FLD. 12/2

•GRAYBIEL, ASHTON
• • •
A COMPARISON OF EFFECTIVENESS OF SOMEANTIMOTION SICKNESS DRUGS USING RECOMMENDEDAND LARGER THAN RECOMMENDED DOSES ASTESTED IN THE SLOW ROTATION ROOM,
AD-629 526 FLD. 6/15

•GREENWOOD, N. N.
• • •
HALOGEN DERIVATIVES OF CO-ORDINATEDGALLIUM HYDRIDE,
AD-629 372 FLD. 7/2

•GREEN, JOSEPH
• • •
CARBORANE-SILOXANE ELASTOMERS.
AD-629 739 FLD. 11/10

•GRIEM, HANS R.
• • •
EXPERIMENTAL PROGRAM.
AD-629 789 FLD. 20/9

•GROSS, M. R.
• • •
MAGNETIC CHARACTERISTICS OF 'NON-MAGNETIC'MATERIALS PERMEABILITY AND COERCIVE FORCEIN STRONG FIELDS 100-200 OERSTEDS,
AD-629 284 FLD. 11/6

•GROSTIC, MARVIN F.
• • •
REACTIVE INTERMEDIATES IN THE BICYCLO/3.1.0/HEXYL AND BICYCLO/3.1.0/ HEXYLIDENE SYSTEMS.I. THE ACID-CATALYZED ADDITION OF METHANOLAND ACETIC ACID TO BICYCLO/3.1.0/HEXENE-2,
AD-629 369 FLD. 7/3

•GROUDAN, JULES
• • •
THE APPLICATION OF DEFENSE VALUEENGINEERING.
AD-629 810 FLD. 14/1

•GRYVNAK, DAVID A.
• • •
ABSORPTION BY CO2 BETWEEN 6600 AND7125/CM (1.4 MICRON REGION).
AD-629 568 FLD. 3/3

•GUARDIOLA-ROTGER, A.
• • •
NUCLEOPROTEIN CHANGES IN THE INTESTINALMUCOSA OF PATIENTS WITH TROPICAL SPRUE,
AD-629 623 FLD. 6/5

•GUAZZI, M.
• • •
PRESSOCEPTIVE AND CHEMOCEPTIVE AORTICREFLEXES IN DECORTICATE AND

IN DECEREBRATECATS,
AD-629 832 FLD. 6/16

•GUBERINA, TETAR
• • •
SUVAG AND SUVAG-LINGUA SPEECH ANALYSERS,
AD-629 840 FLD. 6/12

•GUESS, FLOYD M.
• • •
SENSITIVITY ANALYSIS OF CIVIL DEFENSESYSTEMS AND COMPONENTS. I. COST-EFFECTIVENESS COMPUTER PROCEDURE FOR OPTIMUM ALLOCATION OF FALLOUT SHELTER SYSTEM FUND UNDERUNIFORM OR VARIABLE RISK ASSUMPTIONS.
AD-629 701 FLD. 15/3
• • •
SENSITIVITY ANALYSIS OF CIVIL DEFENSESYSTEMS AND COMPONENTS. INTRODUCTION ANDSUMMARY.
AD-629 709 FLD. 15/3

•GUIER, W. H.
• • •
NON-ZONAL HARMONIC COEFFICIENTS OF THEGEOPOTENTIAL FROM SATELLITE DOPPLER DATA,
AD-629 479 FLD. 8/4
• • •
STUDIES ON DOPPLER RESIDUALS-I: DEPENDENCEON SATELLITE ORBIT ERROR AND STATION POSITION ERROR,
AD-629 476 FLD. 22/3

•GUSAK, YA. M.
• • •
COMPUTATION OF TEMPERATURE FIELDS ANDSTRESSES IN THE COOLED ROTOR OF A GAS TURBINEON STARTING,
AD-629 852 FLD. 21/5

•HAFNER, STEFAN
• • •
BESTIMMUNG DES KLEINSTEN IONENABSTANDES INIONISCHEN SCHMELZEN MITTELS KERNRESONANZ(DETERMINATION OF THE CLOSEST APPROACH OF IONS IN IONICMELTS BY MEANS OF NUCLEAR RESONANCE),
AD-629 333 FLD. 7/4

•HAIST, R. E.
• • •
THE EFFECT OF GLUCAGON ON BLOOD SUGARAND INORGANIC PHOSPHORUS LEVELS IN NORMOTHERMIC AND HYPOTHERMIC RATS,
AD-629 395 FLD. 6/16

•HAKIMI, S. L.
• • •
CUT-SET MATRICES AND LINEAR CODES,
AD-629 380 FLD. 9/4

•HALBERSTEIN, J. H.
• • •
THE DATA RECOVERY CENTER TARGET SIMULATOR.
AD-629 362 FLD. 9/2

•HALL, ROBERT J.
• • •
ANOMALOUS PULMONARY VENOUS RETURN,
AD-629 260 FLD. 6/5

•HAMILTON, C. W.
• • •
RADC RELIABILITY PHYSICS NOTEBOOK,
AD-629 769 FLD. 14/4

•HANRAHAN, D. J.
• • •
THE ROLE OF INDUCTANCE IN SUPERCONDUCTINGENERGY STORAGE CIRCUITS.
AD-629 707 FLD. 20/3

•HANSON, PETER G.
• • •
MAXIMUM VOLUNTARY VENTILATION AFTER + GSUB X IMPACT IN HUMANS.
AD-629 626 FLD. 6/19

•HARDAWAY, ROBERT M.
• • •
INTRAVASCULAR COAGULATION IN IRREVERSIBLESHOCK,
AD-629 269 FLD. 6/5

•HARMYK, J. A.
• • •
DESIGN, FABRICATION AND TESTING OF VENTED,RECHARGEABLE SILVER-CADMIUM CELLS.
AD-629 407 FLD. 10/3

•HARRIS, J. DONALD
• • •
FREQUENCY-RESPONSE CHARACTERISTICS OF ANIMPROVED TRANSISTORIZED MILITARIZED INTERCOMSYSTEM PROPOSED BY THE USN UNDERWATER SOUNDLABORATORY FOR USE IN MAINTENANCE AND TESTINGOF THE AN/BQS-6 SONAR SYSTEM.
AD-629 755 FLD. 17/2
• • •
NOISE SURVEY OF ENGINE ROOMS OF U.S.S. TRINGA.
AD-629 766 FLD. 6/19

•HARRIS, J. D.
• • •
BEKESY AUDIOMETRY AT 20 FREQUENCIES FROMO.2 TO 6 KC/SEC,
AD-629 782 FLD. 6/16

•HARRIS, PAUL E.
• • •
A HIGH PERFORMANCE LOG VIDEO AMPLIFIER,
AD-629 295 FLD. 9/5

•HARRIS, P. J.
• • •
THE DATA RECOVERY CENTER TARGET SIMULATOR.
AD-629 362 FLD. 9/2

•HARRIS, S. E.
• • •
TECHNIQUES FOR SUPER-MODE OSCILLATION.
AD-629 849 FLD. 20/5

•HARRIS, W. S.
• • •
CHEMOELECTRIC ENERGY CONVERSION FOR NONAQUEOUS RESERVE BATTERIES.
AD-629 811 FLD. 10/3

•HARTECK, PAUL
• • •
FORMATION OF EXCITED NO AND N2 BY WALLCATALYSIS,
AD-629 802 FLD. 7/4

•HARTE, KENNETH J.
• • •
THE LORENTZ FORCE,
AD-629 723 FLD. 20/3

•HASHIN, ZVI
• • •
VISCOELASTIC BEHAVIOR OF HETEROGENEOUSMEDIA,
AD-629 403 FLD. 20/11

•HAWKINS, ROSEMARY D.
• • •
THE EFFECT OF GLUCAGON ON BLOOD SUGARAND INORGANIC PHOSPHORUS LEVELS IN NORMOTHERMIC AND HYPOTHERMIC RATS,
AD-629 395 FLD. 6/16

•HAWTHORNE, M. FREDERICK
• • •
REACTION OF B10H10(-2) WITH ARYLDIAZONIUMSALTS,
AD-629 386 FLD. 7/2
• • •
B-PHENYL-1,2- DICARBA CLOVODODECARBORANE(12)FROM B9C2H11(-2) THROUGH AN INSERTION REACTION,
AD-629 387 FLD. 7/2
• • •
CARBAMETALLIC BORON HYDRIDE DERIVATIVES.III. THE PI-C5H5FE(PI-B9C2H11)SYSTEM,
AD-629 388 FLD. 7/2
• • •
CARBAMETALLIC BORON HYDRIDE DERIVATIVES.II. APPARENT ANALOGS OF PI-C5H5MN(CO)3 ANDPI-C5H5RE(CO)3,
AD-629 389 FLD. 7/2
• • •
CARBAMETALLIC BORON HYDRIDE DERIVATIVES.I. APPARENT ANALOGS OF FERROCENE ANDFERRICINIUM ION,
AD-629 390 FLD. 7/2
• • •
THE PREPARATION AND REARRANGEMENT OF THETHREE ISOMERIC B2CH10(-9)IONS,
AD-629 391 FLD. 7/2

•HAYWARD, L. D.
• • •
PHOTOLYSIS OF NITRATE ESTERS, II. SOLUTIONPHOTOLYSIS OF ARALKYL NITRATE ESTERS:KINETICS, ESR SPECTRA, AND PHOTOPRODUCTS,
AD-629 406 FLD. 8/1

•HEATH, W. S.
• • •
ELECTRONICALLY STEERABLE ARRAY: CHANGE A.
AD-629 791 FLD. 9/5

•HECKL, M.
• • •
THEORETICAL AND EXPERIMENTAL INVESTIGATIONON THE AIR- AND BODY-SOUND CONDUCTION FROMA SHIP'S PLATING INTO THE SURROUNDING WATER,
AD-629 690 FLD. 20/1

•HECKMAN, RALPH PAUL
• • •
A METHOD FOR INVESTIGATING THE BEHAVIOR OFATTRIBUTES WHICH BELONG TO INFORMATIONSTORAGE AND RETRIEVAL SYSTEMS.
AD-629 698 FLD. 9/2

•HEINZ, W. W.
• • •
STUDY OF SOLID-STATE AND TRAVELING-WAVEMASER TECHNIQUES.
AD-629 359 FLD. 20/5

•HEMDAL, JOHN F.
• • •
SPEECH ANALYSIS,
AD-629 555 FLD. 5/7

•HENDERSON, MARGARET J.
• • •
THE EFFECT OF GLUCAGON ON BLOOD SUGARAND INORGANIC PHOSPHORUS LEVELS IN NORMOTHERMIC AND HYPOTHERMIC RATS,
AD-629 395 FLD. 6/16

•HENRY, JOHN C.
• • •
RADIO ECHO OBSERVATIONS OF VENUS ANDMERCURY AT 23 CM WAVELENGTH,
AD-629 731 FLD. 3/1

•HERLING, G. H.
• • •
APPLICATIONS OF THE EXACTLY SOLUBLE ONEDIMENSIONAL MODEL OF TRANSFER REACTIONS,
AD-629 637 FLD. 20/8

•HERMAN, ROBERT H.
• • •
REFRACTORY HEMOLYTIC DISEASE ASSOCIATED WITHGLUCOSE-6-PHOSPHATE DEHYDROGENASEDEFICIENCY AND HEMOSIDEROSIS: REPORT OF ACASE,
AD-629 345 FLD. 6/5

•HERMAN, YAYE F.
• • •
REFRACTORY HEMOLYTIC DISEASE ASSOCIATED WITHGLUCOSE-6-PHOSPHATE DEHYDROGENASEDEFICIENCY AND HEMOSIDEROSIS: REPORT OF ACASE,
AD-629 345 FLD. 6/5

•HERRICK, ROBERT M.
• • •
METHODOLOGICAL PROBLEMS OF THE PSYCHOPHYSICAL METHODS OF LIMITS AND CONSTANTSTIMULI.
AD-629 452 FLD. 5/10
• • •
A SHORT-CUT SOLUTION FOR THE KOLMOGOROVSMIRNOV TEST.
AD-629 529 FLD. 12/1

•HERRMANN, GEORGE
• • •
RESPONSE OF A CYLINDRICAL SHELL TO AN ELASTICWAVE,
AD-629 367 FLD. 20/11

•HERRON, W. C.
• • •
EVALUATION OF AIRCRAFT EXPERIMENTALFASTENERS.
AD-629 539 FLD. 11/6

•HERSCOVITZ, VICTORIA E.
• • •
QUANTUM ELECTRODYNAMICS WITH ZERO BAREFERMION MASS,
AD-629 398 FLD. 20/8

•HERSCOVITZ, V. E.
• • •
A GENERALIZATION OF THE LANDAU GAUGE,
AD-629 397 FLD. 20/8
• • •
THE LENGTH SCALE IN QUANTUM ELECTRODYNAMICS WITHOUT A BARE MASS,
AD-629 399 FLD. 20/8
• • •
BROKEN SYMMETRIES AND THE ELECTRON-MUONPROBLEM,
AD-629 400 FLD. 20/8

•HERSHKOWITZ, MARTIN
• • •
FINDING THE INVERSE AND CONNECTIONS OF ATYPE OF LARGE SPARSE MATRIX,
AD-629 674 FLD. 12/2

•HERTZBERG, R. W.
• • •
STUDY OF THE EFFECT OF SOLIDIFICATIONSTRUCTURES ON THE STRENGTH OF METALS.
AD-629 772 FLD. 11/6

•HIRSCHFELDER, JOSEPH O.
• • •
INTERMOLECULAR FORCES,
AD-629 831 FLD. 7/4

•HOFFMAN, JOHN R.
• • •
MINIMUM FUEL ANALYSIS OF A LUNAR SOFTLANDING MISSION USING FEEDBACK CONTROL.
AD-629 681 FLD. 22/3

•HOFFMAN, MYRON A.
• • •
RESEARCH ON NEW CONCEPTS IN ENERGYCONVERSION.
AD-629 736 FLD. 10/2

•HOFSTADTER, R.
• • •
CHARGE DISTRIBUTIONS OF CA40 AND CA44 FROM250 MEV ELECTRON SCATTERING,
AD-629 272 FLD. 20/8

•HOGAN, T. J., JR.
• • •
SYSTRAN (SYSTEMS ANALYSIS TRANSLATOR): ADIGITAL COMPUTER PROGRAM.
AD-629 468 FLD. 9/2

•HOLLAND, WADE B.
• • •
SOVIET CYBERNETICS TECHNOLOGY: V. SOVIETPROCESS CONTROL COMPUTERS,
AD-629 290 FLD. 9/2

•HOLLOWAY, JOSEPH H.
• • •
CESIUM BEAM TUBE RESEARCH.
AD-629 613 FLD. 9/1

•HONE, DANIEL
• • •
THERMODYNAMIC PROPERTIES OF SPIN IMPURITIESIN HEISENBERG FERROMAGNETS.
AD-629 721 FLD. 20/3

•HONNOLD, VINCENT R.
• • •
SEMICONDUCTOR DESIGN EFFECTS ON RADIATIONRESISTANCE.
AD-629 509 FLD. 18/8

•HOOPRICH, EUGENE A.
• • •
AN INVESTIGATION OF THE UTILITY OF A CONVERSIONCHART AS A JOB AID FOR ELECTRONICS TECHNICIANS.
AD-629 608 FLD. 5/9
• • •
THE EFFECT OF ELECTROLYTE ADDITION ON THEVISCOSITY OF WATER UNDER PRESSURE.
AD-629 291 FLD. 7/4
• • •
THE ARRHENIUS ACTIVATION ENERGY OFELECTRICAL CONDUCTANCE IN H2O AND D2O.
AD-629 292 FLD. 7/4

•HOROWITZ, MARDI J.
• • •
DEPERSONALIZATION IN SPACEMEN ANDSUBMARINERS.
AD-629 336 FLD. 5/10
• • •
BODY-BUFFER ZONE. EXPLORATION OF PERSONALSPACE.
AD-629 337 FLD. 5/10
• • •
HUMAN SPATIAL BEHAVIOR.
AD-629 338 FLD. 5/10

•HOSTETTER, ROBERT S.
• • •
DISPLACEMENT: SOCIAL AND PSYCHOLOGICALPROBLEMS.
AD-629 519 FLD. 5/11

•HUANG, NAI LI
• • •
COVALENCY PARAMETERS AND THE G FACTORFOR NI(2+): KMGF3,
AD-629 499 FLD. 7/4

•HUBBARD, MONT, JR.
• • •
TWIST BUCKLING OF COIL SPRINGS OF VARIOUSWIRE CROSS SECTIONS.
AD-629 686 FLD. 20/11

•HUGHES, GEORGE W.
• • •
SPEECH ANALYSIS,
AD-629 555 FLD. 5/7

•HYDE, GERALD M.
• • •
RADIO ECHO OBSERVATIONS OF VENUS ANDMERCURY AT 23 CM WAVELENGTH,
AD-629 731 FLD. 3/1

•IBER, FRANK L.
• • •
BILIRUBIN-CARBON-14 METABOLISM IN ISOLATEDINTESTINAL LOOPS,
AD-629 915 FLD. 6/5

•ICHIKAWA, YOSHI H.
• • •
ION OSCILLATIONS IN A WEAKLY TURBULENTPLASMA,
AD-629 609 FLD. 20/9

•IGNATENKO, M.
• • •
SIBERIAN CEDAR ON PINE ROOTSTOCK,
AD-629 570 FLD. 2/6

•INFIELD, J. M.
• • •
MACHINING HIGH PURITY ALUMINA.
AD-629 484 FLD. 13/8

•INSELBERG, ALFRED
• • •
ON CLASSIFICATION AND SUPERPOSITION PRINCIPLES FOR NONLINEAR OPERATORS.
AD-629 268 FLD. 12/1

•IONOV, V. N.
• • •
NEWS OF SCHOOLS OF HIGHER EDUCATION.MATHEMATICS. (SELECTED ARTICLES),
AD-629 851 FLD. 12/1

•IRISAWA, HIROSHI
• • •
MECHANISMS OF SMOOTH MUSCLE RELAXATIONTHROUGH THE ANODAL CURRENT STIMULATION.
AD-629 739 FLD. 6/16

•IRRE, E. W.
• • •
HYDRA PROGRAM, A SHORT-RANGE TELEMETERINGROCKET FOR MEASUREMENT OF UNDERWATERNUCLEAR-BURST PLUME RADIATION.
AD-629 857 FLD. 18/9

•ISAACS, L. G.
• • •
PHOTODEGRADATION OF HIGH POLYMERS. PARTVII - PHOTOLYSIS OF POLY(N-BUTYL METHACRYLATE)IN VACUUM,
AD-629 303 FLD. 8/1

•ISACSSON, P.
• • •
QUASI-FREE PROTON SCATTERING IN LIGHT NUCLEIAT 460 MEV,
AD-629 318 FLD. 20/8

•ISHIZAKI, TATSUSHI
• • •
RESPIRATORY DISEASES DUE TO AIR POLLUTION ONTOKYO-YOKOHAMA AREA.
AD-629 791 FLD. 6/5

•ISRAEL, B. M.
• • •
REACTIONS OF CHLORINE DIOXIDE AND OTHER OXYCHLORO COMPOUNDS WITH ORGANIC COMPOUNDS.KINETICS OF REACTION BETWEEN CHLORINEDIOXIDE AND PHENOL.
AD-629 316 FLD. 7/3

•ITOH, KOICHI
• • •
PROTON-DEUTERON EXCHANGE OF THE RADICALIN IRRADIATED SINGLE CRYSTALS OF DL-ASPARTICACID: EFFECT OF THE CRYSTAL FIELD ON THECHEMICAL REACTION,

AD-629 385 FLD. 8/1

•IVANOVA, Z. G.
• • •
STUDY OF THE PROPERTIES AND OF THE FEASIBILITYOF USING ORGANOBOROSILICON POLYMERS AS CONSTITUENTS OF HEAT-RESISTANT ADHESIVES,
AD-629 752 FLD. 11/1

•IWAMOTO, REYNOLD T.
• • •
THE PREPARATION AND INFRARED EXAMINATIONOF THE 2-,3-, AND 4-CYANOPYRIDINE COMPLEXESOF COPPER(I), SILVER(I), AND GOLD(I) PERCHLORATES,
AD-629 926 FLD. 7/2

•JACKSON, WILLIAM D.
• • •
RESEARCH ON NEW CONCEPTS IN ENERGYCONVERSION.
AD-629 726 FLD. 10/2

•JACKSON, W. D.
• • •
CALIBRATION OF ELECTROMAGNETIC FLOWMETERSFOR BLOOD FLOW MEASUREMENT,
AD-629 622 FLD. 6/12

•JACOB, GERHARD
• • •
APPLICATION OF METHODS COMMON TO ELEMENTARY PARTICLE PHYSICS AND MANY-BODYPROBLEMS.
AD-629 396 FLD. 20/8
• • •
QUANTUM ELECTRODYNAMICS WITH ZERO BAREFERMION MASS,
AD-629 398 FLD. 20/8

•JACOB, G.
• • •
A GENERALIZATION OF THE LANDAU GAUGE,
AD-629 397 FLD. 20/8
• • •
THE LENGTH SCALE IN QUANTUM ELECTRODYNAMICS WITHOUT A BARE MASS,
AD-629 399 FLD. 20/8
• • •
BROKEN SYMMETRIES AND THE ELECTRON-MUONPROBLEM,
AD-629 400 FLD. 20/8

•JAIN, A. C.
• • •
COMPRESSIBLE VISCOUS FLOW OVER SLENDERBODIES WITH PRESSURE GRADIENT, VARIABLEFLUID PROPERTIES, ARBITRARY LAWS OF SURFACETEMPERATURE AND FOREIGN GAS INJECTIONVELOCITY DISTRIBUTION.
AD-629 446 FLD. 20/4

•JANKOWSKI, T.
• • •
AN ANALYSIS OF THE RESULTS OF INVESTIGATIONSOF A MODEL TURBINE STAGE USING COMPUTERS,
AD-629 836 FLD. 10/1

•JARVIS, NELDON L.
• • •
ADSORPTION OF SURFACE-ACTIVE MATERIAL ATTHE SURFACE OF SEA-WATER SAMPLES FROM THEBAY OF PANAMA.
AD-629 429 FLD. 8/10

•JARVIS, N. L.
• • •
SURFACE CHEMISTRY OF FLUOROCHEMICALS.
AD-629 610 FLD. 7/4

•JASPERSE, J. R.
• • •
TEMPERATURE DEPENDENCE OF THE INFRAREDSPECTRA OF SELECTED DIELECTRICS.
AD-629 896 FLD. 11/7

•JENSEN, C. A.
• • •
INTENSE 584-A LIGHT FROM A SIMPLE CONTINUOUSHELIUM PLASMA,
AD-629 379 FLD. 20/9

•JERNIGAN, R. L.
• • •
SECOND AND FOURTH MOMENTS OF CHAIN MOLECULES,
AD-629 273 FLD. 7/4

•JERVIS, HELEN ROLAND
• • •
DEMONSTRATION OF ALKALINE PHOSPHATASE INGROSS SPECIMENS OF SMALL INTESTINE,
AD-629 391 FLD. 6/5

•JEUNESSE, D. J. LA
• • •
SYSTRAN (SYSTEMS ANALYSIS TRANSLATOR): ADIGITAL COMPUTER PROGRAM.
AD-629 468 FLD. 9/2

•JISCHKE, MARTIN C.
• • •
RADIATION COUPLED WEDGE FLOW USING METHODOF INTEGRAL RELATIONS,
AD-629 894 FLD. 20/4

•JOHANSSON, STIG
• • •
TECHNIQUES FOR CALORIMETRIC TITRATIONS INTHE SEMI-MICRO RANGE. PART I. APPARATUS. ASENSITIVE, AUTOMATICALLY RECORDING QUASIISOTHERMAL CALORIMETER,
AD-629 328 FLD. 14/2

•JOHNSON, D. E.
• • •
RESEARCH ON ANALYSIS OF AMINO ACIDS BY GASCHROMATOGRAPHY.
AD-629 469 FLD. 6/1

•JOHNSON, D. S.
• • •
THE EFFECT OF ELECTROLYTE ADDITION ON THEVISCOSITY OF WATER UNDER PRESSURE.
AD-629 291 FLD. 7/4
• • •
THE ARRHENIUS ACTIVATION ENERGY OFELECTRICAL CONDUCTANCE IN H2O AND D2O.
AD-629 292 FLD. 7/4

•JOHNSON, E. M.
• • •
GENETIC MAPPING OF VI AND SOMATIC ANTIGENICDETERMINANTS IN SALMONELLA,
AD-629 483 FLD. 6/13

•JOHNSON, E. T.
• • •
A METHOD FOR THE DETERMINATION OF STRONGACID VAPORS IN THE PPM RANGE.
AD-629 296 FLD. 7/2

•JOHNSON, FRANK B.
• • •
BARIUM SULPHATE AND ZINC SULFIDE DEPOSITSRESULTING FROM GOLF-BALL INJURY TO THECONJUNCTIVA AND EYELID,
AD-629 805 FLD. 6/5

•JOHNSON, PHILIP L.
• • •
INVESTIGATION OF SUGAR CANE VIGOR WITH AERIALPHOTOGRAPHY IN PUERTO RICO.
AD-629 625 FLD. 2/4

•JOHNSTON, R. K.
• • •
A STUDY OF THE USAF SCHOOL OF AEROSPACEMEDICINE HUMAN CENTRIFUGE.
AD-629 596 FLD. 14/2

•JONES, I. W.
• • •
THE EFFECT OF STRUCTURAL DAMPING ON THEACOUSTICAL FIELD SURROUNDING A SUBMERGEDVIBRATING SANDWICH SHELL,
AD-629 442 FLD. 20/11

•JONES, LAWRENCE W.
• • •
THE USE OF COSMIC RAYS TO STUDY PHYSICS INTHE RANGE 100-1000 GEV.
AD-629 518 FLD. 20/8

•JONES, LILY A.
• • •
THE LIFE-CYCLE OF AN ACTINOPHAGE FORSTREPTOMYCES VENEZUELAE,
AD-629 423 FLD. 6/13

•KAGEN, LAWRENCE J.
• • •
USE OF HEPARIN IN DISTINGUISHING PLASMAKALLIKREIN FROM PF/DIL,
AD-629 401 FLD. 6/5

•KAMPA, ELIZABETH M.
• • •
AN ASPECT OF EUPHAUSIID ECOLOGY REVEALEDBY ECHO-SOUNDING IN A FJORD,
AD-629 420 FLD. 8

•KAPLAN, N. M.
• • •
SOVIET TRANSPORT AND COMMUNICATIONS:OUTPUT INDEXES, 1928-1962,
AD-629 818 FLD. 5/3

•KATZ, MILTON S.
• • •
DETECTION IN A HOMOGENOUS VISUAL FIELDUNDER A CONDITION OF INFINITE DEPTH OF FOCUS,
AD-629 531 FLD. 5/9

•KAZANJIAN, A. R.
• • •
NATURE OF THE CHEMICAL REACTIVITY OFRADIOBROMINE ATOMS PRODUCED BY ISOMERICTRANSITION,
AD-629 366 FLD. 8/1

•KENNEDY, P. M.
• • •
PRODUCTION ENGINEERING MEASURE FORMECHANIZATION OF HIGH RELIABILITY CAPACITORS.
AD-629 515 FLD. 9/1

•KENNEDY, ROBERT S.
• • •
A COMPARISON OF EFFECTIVENESS OF SOMEANTIMOTION SICKNESS DRUGS USING RECOMMENDEDAND LARGER THAN RECOMMENDED DOSES ASTESTED IN THE SLOW ROTATION ROOM,
AD-629 526 FLD. 6/15

•KENT, PAUL F.
• • •
VISUAL REQUIREMENT FAILURE BY CANDIDATESREPORTING FOR BASIC SUBMARINE TRAINING DURING1964.
AD-629 781 FLD. 5/9

•KERN, SANFORD
• • •
PREPARATION AND PARAMAGNETISM OF THE RAREEARTH TRIFLUORIDES,
AD-629 722 FLD. 7/2

•KERREBROCK, JACK L.
• • •
RESEARCH ON NEW CONCEPTS IN

ENERGYCONVERSION.
AD-629 736 FLD. 10/2

*KERR, H. C.
• • •
MACH NUMBER TABLES (GAMMA = 1.4) WITHCORRECTION FACTORS FOR REAL AIR.
AD-629 998 FLD. 20/4

*KINGSTON, A. E.
• • •
THE IONIZATION OF INERT GAS ATOMS BYELECTRON AND PROTON IMPACT AT HIGH ENERGIES,
AD-629 277 FLD. 20/8

*KING, HOWARD EDWARD
• • •
A MICROWAVE RADIO RELAY SYSTEM.
AD-629 669 FLD. 17/2

*KING, K. M.
• • •
HYDRA PROGRAM, A SHORT-RANGE TELEMETERINGROCKET FOR MEASUREMENT OF UNDERWATERNUCLEAR-BURST PLUME RADIATION.
AD-629 857 FLD. 18/4

*KIRKPATRICK, W. J.
• • •
HIRING THE TECHNICAL EDITOR. THE PROSPECTIVEEMPLOYER'S VIEWPOINT,
AD-629 449 FLD. 5/9

*KLEIN, MARK J.
• • •
THE STRUCTURE OF EXPLOSIVELY SHOCKEDMGO CRYSTALS.
AD-629 639 FLD. 20/2

*KNAPPE, WERNER
• • •
BASES FOR THE DESIGN OF DEFINITIVELYSTRESSED CONSTRUCTION ELEMENTS MADE OFSYNTHETICS,
AD-629 932 FLD. 11/9

*KNAPP, H. A.
• • •
MAGNITUDE AND DISTRIBUTION OF WEAPONEFFECTS FOR THE DESIGN OF SHELTERS FORPROTECTION AGAINST FALLOUT.
AD-629 370 FLD. 13/13

*KOERT, PETER
• • •
SHF SEQUENTIAL LOBING SYSTEM.
AD-629 309 FLD. 9/5

*KOESTER, CHARLES J.
• • •
OPTICAL AND ELECTRO-OPTICAL INFORMATIONPROCESSING,
AD-629 812 FLD. 9/2

*KOFFER, KENNETH
• • •
THE EFFECTS OF AUDITORY STIMULATION ANDMOTOR ACTIVITY ON NUCLEIC ACIDS AND PROTEINS,
AD-629 528 FLD. 5/10
• • •
THE EFFECTS OF CHEMICAL STIMULATION ANDLEARNING ON NUCLEIC ACIDS AND PROTEINS.
AD-629 705 FLD. 5/10

*KOHLER, D.
• • •
0 DEGREE YIELD OF GAMMA RAYS IN THE T(P,GAMMA)4 HE REACTION.
AD-629 621 FLD. 20/8

*KOLTHOFF, I. M.
• • •
REVIEW OF FUNDAMENTALS OF POLAROGRAPHYIN INERT ORGANIC SOLVENTS,
AD-629 330 FLD. 7/4

*KONDO, ISAMU
• • •
GENETIC ANALYSIS OF MICROORGANISM BY MIXEDINFECTION OF ACTIVE PHAGE PARTICLES ANDPHAGE OR BACTERIAL DNA.
AD-629 749 FLD. 6/13

*KOOPMANS, L. H.
• • •
A STATISTICAL STUDY OF THE DERAILMENTHAZARD FOR U. S. CLASS I RAILWAYS,
AD-629 675 FLD. 12/2

*KORSHAK, V. V.
• • •
SYNTHESIS AND PROPERTIES OF ORGANOELEMENTALPOLYMERS WITH SILICON, GERMANIUM, AND TININ THE CHAIN,
AD-629 725 FLD. 7/3

*KOSIKOV, K. M.
• • •
METHOD OF SHORT-WAVE RADIO COMMUNICATIONTHROUGH THE POLAR ZONE,
AD-629 859 FLD. 17/2.1

*KOSSANYI-DEMAY, P.
• • •
STUDY OF NUCLEAR EXCITATIONS IN B10, B11,AND N14 BY INELASTIC ELECTRON SCATTERINGAT 180 DEG,
AD-629 270 FLD. 20/8

*KOT, R.
• • •
DEFORMATION CHARACTERISTICS OF METALS ANDALLOYS.
AD-629 267 FLD. 11/6

*KOVOSELSKII, O. YU.
• • •
DETERMINATION OF THE OPTIMUM DIMENSIONSOF RADIATING FINS,
AD-629 850 FLD. 20/13

*KRAFT, LEON G.
• • •
RADIO ECHO OBSERVATIONS OF VENUS ANDMERCURY AT 23 CM WAVELENGTH,
AD-629 731 FLD. 3/1

*KRAFT, R. WAYNE
• • •
STUDY OF THE EFFECT OF SOLIDIFICATIONSTRUCTURES ON THE STRENGTH OF METALS.
AD-629 772 FLD. 11/6

*KRAUSKOPF, BARBARA
• • •
GENETIC MAPPING OF VI AND SOMATIC ANTIGENICDETERMINANTS IN SALMONELLA,
AD-629 483 FLD. 6/13

*KRIEBEL, C. H.
• • •
PROPOSED RESEARCH ON MANAGEMENT INFORMATION SYSTEMS.
AD-629 730 FLD. 5/1

*KULLANDER, S.
• • •
QUASI-FREE PROTON SCATTERING IN LIGHT NUCLEIAT 460 MEV,
AD-629 318 FLD. 20/8

*KUO, JOHN T.
• • •
SUPPORT OF VISITING SEISMOLOGISTS.
AD-629 493 FLD. 8/11

*KURKJIAN, BADRIG M.
• • •
DIGITAL GENERATION OF BAND-LIMITED GAUSSIANNOISE,
AD-629 689 FLD. 9/3

*KURLAND, HOWARD D.
• • •
SEROLOGIC INDICES OF MENTAL DISORDERS.
AD-629 335 FLD. 6/5

*KUWABARA, S.
• • •
ELECTROHYDRODYNAMIC FLOW OVER A WAVYWALL.
AD-629 506 FLD. 20/9

*KYSEL, O.
• • •
A PYROLYTIC CELL FOR THE CHROMATOGRAPHICSTUDY OF POLYMERS,
AD-629 841 FLD. 14/2

*LA CROIX, JOHN THOMAS
• • •
BILATERAL REPRESENTATION OF THEHORIZONTAL SEMICIRCULAR CANALS IN THE INFERIORVESTIBULAR NUCLEUS OF CATS.
AD-629 663 FLD. 6/16

*LAFFERTY, W. J.
• • •
FAR-INFRARED SPECTRUM OF TETRAHYDROFURAN:SPECTROSCOPIC EVIDENCE FOR PSEUDOROTATION,
AD-629 492 FLD. 7/3

*LANGENECKER, B.
• • •
INVERSE MAGNETOSTRICTIVE EFFECT OFULTRASONIC STRESS WAVES IN STEEL.
AD-629 691 FLD. 11/6

*LANGE, BENJAMIN O.
• • •
THE APPLICATION OF FLOQUET THEORY TO THECOMPUTATION OF SMALL ORBITAL PERTURBATIONSOVER LONG TIME INTERVALS USING THE TSCHAUNERHEMPEL EQUATIONS,
AD-629 655 FLD. 22/3

*LASITER, H. A.
• • •
ELECTROMAGNETIC SHIELDING EFFECTIVENESSMEASUREMENTS USING LOW CONDUCTIVITY CLOSEDSURFACES.
AD-629 708 FLD. 9/1

*LAWHEAD, W.
• • •
TRANSIENT ANALYSIS OF OBLIQUE IMPACT ONPLATES,
AD-629 379 FLD. 20/11

*LAWLER, R. G.
• • •
ON THE BROMOPYRENES,
AD-629 329 FLD. 7/3

*LAWRENCE, ROBERT HENRY, JR.
• • •
THE MECHANISM OF THE TRITIUM BETA-RAYINDUCED EXCHANGE REACTIONS OF DEUTERIUMWITH METHANE AND ETHANE IN THE GAS PHASE.
AD-629 697 FLD. 8/1

*LEACH, P. B.
• • •
SURFACE CHEMICAL METHODS OF DISPLACINGWATER AND/OR OILS AND SALVAGING FLOODEDEQUIPMENT. PART V. FIELD EXPERIENCE INREMOVING SEA-WATER SALT RESIDUES, SAND, DUST,AND SOLUBLE CORROSIVE PRODUCTS FROM AN/FPS16(XN-1) MISSILE- AND SATELLITE-TRACKING RADAR.
AD-629 293 FLD. 13/8

*LEECH, R. C.
• • •

INVESTIGATION OF THE NATURE OF STRUCTURALDAMAGE IN METAL-FORMING PROCESSES.
AD-629 257 FLD. 13/8

•LEE, E. L.
• • •
SHOCK INITIATION OF LOW-DENSITY PRESSINGS OFAMMONIUM PERCHLORATE,
AD-629 537 FLD. 19/1

•LEE, HAI SUP
• • •
THE MEASUREMENT OF PHASE AND AMPLITUDERADIO WAVE INTERACTION AT UNIVERSITY PARK,PENNSYLVANIA, FOR APRIL-MAY-JUNE, 1965.
AD-629 393 FLD. 4/1

•LEE, H. C.
• • •
DEVELOPMENT OF TRANSISTOR-VARACTOR DIODECAPABLE OF 5 WATTS OUTPUT AT 2.3 GIGACYCLES.
AD-629 566 FLD. 9/1

•LEE, H. S.
• • •
INVESTIGATION OF PROBLEMS ENCOUNTERED INWAVE INTERACTION EXPERIMENTS AT HIGH POWER.
AD-629 847 FLD. 20/14

•LEMLEY, JAMES
• • •
VAPORIZATION CATALYSIS. THE DECOMPOSITIONOF GALLIUM NITRIDE,
AD-629 384 FLD. 7/4

•LEONARD, WILLIAM J. , JR.
• • •
THERMODYNAMIC PROPERTIES OF SOLUTIONS OFHELICAL POLYPEPTIDES,
AD-629 274 FLD. 7/4

•LEPPING, RONALD P.
• • •
AN INTRODUCTORY THEORETICAL STUDY OFCONSTANT PERMEABILITY MAGNETIC SHIELDING.
AD-629 312 FLD. 20/3

•LETTVIN, J. Y.
• • •
GLASS-COATED TUNGSTEN MICROELECTRODES,
AD-629 353 FLD. 9/1

•LEUNG, YUK M.
• • •
A COLLECTION OF WHALE-LICE (CYAMIDAE:AMPHIPODA),
AD-629 421 FLD. 6/3

•LEUTWYLER, COOKE HEARON
• • •
SPACE VARIATIONS IN AXIS HEIGHT OF THE JETSTREAM CORE.
AD-629 669 FLD. 4/2

•LEVIALDI, S.
• • •
SELF MODULATING DERIVATIVE OPTICALSPECTROSCOPY. PART 2: EXPERIMENTAL.
AD-629 765 FLD. 20/6

•LEVINSKII, L. S.
• • •
MAGNETIC OPERATIONAL MEMORY DEVICE OF ANINFORMATION-LOGICAL MACHINE,
AD-629 853 FLD. 9/2

•LEVY, J. B.
• • •
RESEARCH ON THE DEFLAGRATION OF HIGH-ENERGYSOLID OXIDIZERS.
AD-629 533 FLD. 21/9.2

•LEVY, PETER M.
• • •
RARE-EARTH-IRON EXCHANGE INTERACTION IN THEGARNETS. II- EXCHANGE POTENTIAL FOR YTTERBIUM.
AD-629 719 FLD. 7/4

•LEZNOV, N. S.
• • •
STUDY OF THE PROPERTIES AND OF THE FEASIBILITYOF USING ORGANOBOROSILICON POLYMERS AS CONSTITUENTS OF HEAT-RESISTANT ADHESIVES,
AD-629 752 FLD. 11/1

•LIBBY, W. F.
• • •
PERFATORY CHAPTER: THIRTY YEARS OF ATOMICCHEMISTRY,
AD-629 365 FLD. 8/1
• • •
NATURE OF THE CHEMICAL REACTIVITY OFRADIOBROMINE ATOMS PRODUCED BY ISOMERICTRANSITION,
AD-629 366 FLD. 8/1
• • •
POSITIVE-ION CHEMISTRY: HIGH YIELDS OFHEAVY HYDROCARBONS FROM SOLID METHANE BYIONIZING RADIATION,
AD-629 368 FLD. 8/1
• • •
INTENSE 584-A LIGHT FROM A SIMPLE CONTINUOUSHELIUM PLASMA,
AD-629 375 FLD. 20/9
• • •
SUPERCONDUCTIVITY IN THE ARTIFICIAL METALS:METALLIC INDIUM ANTIMONIDE, THE INDIUM-ANTIMONIDE-TIN ALLOYS, AND METALLIC INDIUMTELLURIDE,
AD-629 376 FLD. 20/12
• • •
ARTIFICIAL METALS: INSB, THE SN ALLOYS WITHINSB, AND METALLIC INTE,
AD-629 377 FLD. 11/6

•LIBEN, WILLIAM
• • •
MICROELECTRONIC ENGINEERING. VOLUME I.FABRICATION TECHNOLOGY,
AD-629 315 FLD. 9/1

•LIBREITI, A.
• • •
PRESSOCEPTIVE AND CHEMOCEPTIVE AORTICREFLEXES IN DECORTICATE AND IN DECEREBRATECATS,
AD-629 832 FLD. 6/16

•LICHSTEIN, HERMAN C.
• • •
BIOTIN TRANSPORT AND ACCUMULATION BY CELLSOF LACTOBACILLUS PLANTARUM. I. GENERALPROPERTIES OF THE SYSTEM,
AD-629 491 FLD. 6/13

•LIEBERMAN, DAVID
• • •
STUDIES IN AUTOMATIC LANGUAGE PROCESSING.
AD-629 309 FLD. 5/7

•LIEBSCHUTZ, A. M.
• • •
RADIATION EFFECTS ON MICROELECTRONICCIRCUITS (SEMICONDUCTOR).
AD-629 561 FLD. 9/1

•LIPSCOMB, D. J.
• • •
EVALUATION OF AIRCRAFT EXPERIMENTALFASTENERS.
AD-629 539 FLD. 11/6

•LITTLE, W. A.
• • •
ELECTRON SCATTERING EXPERIMENTS;MEASUREMENT OF TRANSMISSION OF 8.3-MEVNEUTRONS PRODUCED BY A VAN DE GRAAFFGENERATOR; MAGNETIZATION CURVE OF HOLMIUM.
AD-629 298 FLD. 20/8

•LI, T. Y.
• • •
COMPRESSIBLE VISCOUS FLOW OVER SLENDERBODIES WITH PRESSURE GRADIENT, VARIABLEFLUID PROPERTIES, ARBITRARY LAWS OF SURFACETEMPERATURE AND FOREIGN GAS INJECTIONVELOCITY DISTRIBUTION.
AD-629 496 FLD. 20/4
• • •
FURTHER STUDIES ON THE HUMAN ECCRINE SWEATGLAND.
AD-629 409 FLD. 6/16

•LOCH, ERWIN
• • •
AEROSTATIC (EXTERNALLY-PRESSURIZED GASLUBRICATED) THRUST BEARINGS,
AD-629 289 FLD. 13/9

•LOMBARD, C. F.
• • •
THE EFFECTS OF ELASTICITY UPON THE PRESSURESWITHIN A LIQUID FILLED TUBE WHEN SUBJECTED TOFLUCTUATING FORCES,
AD-629 419 FLD. 6/19

•LOSHKAREV, A. I.
• • •
CERTAIN RESULTS OF INVESTIGATION OF ACENTRIPETAL GAS TURBINE WITH NOZZLEADJUSTMENT,
AD-629 767 FLD. 21/5

•LOW, MANFRED J. D.
• • •
INFRARED STUDY OF THE NATURE OF THE HYDROXYLGROUPS ON THE SURFACE OF POROUS VYCOR GLASS.
AD-629 595 FLD. 7/4

•LUCE, JOHN S.
• • •
RESEARCH IN HIGH TEMPERATURE PLASMAS FORSPACE APPLICATIONS. VOLUME II. ENGINEERING.
AD-629 466 FLD. 20/9

•LUGT, HANS J.
• • •
ATMOSPHERIC CONVECTION PRODUCED BY LOCALHEATING OR COOLING OF A HORIZONTAL SURFACE,
AD-629 774 FLD. 4/2

•LUNEVA, L. K.
• • •
SYNTHESIS AND PROPERTIES OF ORGANOELEMENTALPOLYMERS WITH SILICON, GERMANIUM, AND TININ THE CHAIN,
AD-629 725 FLD. 7/3

•LYKLEMA, J.
• • •
A STUDY OF DOUBLE LAYER REPULSION AND VANDER WAALS ATTRACTION IN SOAP FILMS,
AD-629 280 FLD. 7/4

•LYNCH, LYNDEN W.
• • •
COMPOSITE PLASTIC FILMS FOR FLEXIBLETRANSPARENT PACKAGING.
AD-629 574 FLD. 13/4

•LYUBIVAYA, A. I.
• • •
METHODS FOR CALCULATING CANNING PRODUCTIONCOSTS; ACCELERATED METHOD FOR DETERMININGMOISTURE IN DRIED VEGETABLES: STUDYING THE USEOF SORBIC ACID IN CANNING FRUIT AND VEGETABLESAND RECONSTITUTION OF VEGETABLES DRIEDBY SUBLIMATION,
AD-629 571 FLD. 6/8

708-319 O - 68 - 10

•MABEL, THOMAS A.
• • •
INTER-PHASE TIME INTERVALS IN SEWARD'SLATENT LEARNING EXPERIMENT,
AD-629 296 FLD. 5/10

•MACEWEN, J. D.
• • •
TOXIC HAZARDS RESEARCH UNIT DESIGN ANDCONSTRUCTION PHASE.
AD-629 973 FLD. 14/2

•MACIEL, GARY E.
• • •
CARBON-13 MAGNETIC RESONANCE SPECTRA OF1-SUBSTITUTED 1-HEXYNES,
AD-629 909 FLD. 7/3

•MACLANE, SAUNDERS
• • •
CATEGORICAL ALGEBRA,
AD-629 371 FLD. 12/1

•MACNEILL, I.
• • •
FIRST PASSAGE TIMES AND OUTER ANALYSIS OFCONTINUOUS PARAMETER MARKOV CHAINS.
AD-629 498 FLD. 12/1

•MAGER, MILTON
• • •
TISSUE LACTIC DEHYDROGENASE ISOZYMES:VARIATION IN RATS DURING PROLONGED COLDEXPOSURE,
AD-629 796 FLD. 6/19

•MAH, ROBERT A.
• • •
NUTRITIONAL REQUIREMENTS OF ENTEROTOXIGENICSTRAINS OF STAPHYLOCOCCUS AUREUS.
AD-629 299 FLD. 6/13

•MAKARENKOV, V. V.
• • •
THE ROLE OF KINETIC AND DIFFUSIONAL FACTORSIN THE COMBUSTION OF FUELS IN GAS-TURBINEENGINES,
AD-629 729 FLD. 21/9

•MANION, WILLIAM C.
• • •
ANOMALOUS PULMONARY VENOUS RETURN,
AD-629 260 FLD. 6/5

•MANNELLA, GENE
• • •
FORMATION OF EXCITED NO AND N2 BY WALLCATALYSIS,
AD-629 802 FLD. 7/4

•MARCHUK, G. I.
• • •
THE AUTOMATIC CONSTUCTION OF COMPUTATIONALALGORITHMS.
AD-629 829 FLD. 9/2

•MARCUS, B.
• • •
ELECTROFLUID HYPERSONIC RESEARCH,
AD-629 569 FLD. 20/9

•MARIS, A. J.
• • •
A GENERALIZATION OF THE LANDAU GAUGE,
AD-629 397 FLD. 20/8
• • •
THE LENGTH SCALE IN QUANTUM ELECTRODYNAMICS WITHOUT A BARE MASS,
AD-629 399 FLD. 20/8

•MARIS, TH. A. J.
• • •
QUANTUM ELECTRODYNAMICS WITH ZERO BAREFERMION MASS,
AD-629 398 FLD. 20/8
• • •
BROKEN SYMMETRIES AND THE ELECTRON-MUONPROBLEM,
AD-629 400 FLD. 20/8

•MARKOW, BASIL
• • •
A GEIGER-MULLER SURVEY METER WITH ADDEDRANGE AND SAFETY.
AD-629 599 FLD. 18/4

•MARRAM, E. P.
• • •
TEMPERATURE DEPENDENCE OF THE INFRAREDSPECTRA OF SELECTED DIELECTRICS.
AD-629 896 FLD. 11/7

•MARSHALL, A. W.
• • •
COST/BENEFIT ANALYSIS IN HEALTH,
AD-629 778 FLD. 14/1

•MARSHALL, P. A., JR.
• • •
MACHINING HIGH PURITY ALUMINA.
AD-629 489 FLD. 13/8

•MARSHALL, R. W.
• • •
RADIATION EFFECTS ON MICROELECTRONICCIRCUITS (SEMICONDUCTOR).
AD-629 561 FLD. 9/1

•MARTINSON, R. H.
• • •
THE DATA RECOVERY CENTER TARGET SIMULATOR.
AD-629 362 FLD. 9/2

•MASON, S. G.
• • •
PARTICLE MOTIONS IN SHEARED SUSPENSIONS.XVI. ORIENTATIONS OF RODS AND DISKS INHYPERBOLIC AND OTHER FLOWS,
AD-629 293 FLD. 7/4
• • •
OPTICAL INTERFERENCE IN CURVED SOAP FILMS,
AD-629 404 FLD. 7/4

•MAYO, HENRY C.
• • •
CHARACTERISTIC DYNAMIC STRENGTH RATIO ASTHE LIMITING PARAMETER IN SHOCK DESIGN,
AD-629 438 FLD. 13/13

•MCCARROLL, R.
• • •
EXCITATION OF NEUTRAL ATOMS BY ELECTRONIMPACT,
AD-629 278 FLD. 20/8

•MCCLURE, DONALD S.
• • •
ZEEMAN SPLITTING OF NARROW LINES INCRYSTALLINE MNF2, FEF2, AND COF2. EVIDENCEFOR SPIN-WAVE EXCITATIONS.
AD-629 803 FLD. 7/4

•MCCONNELL, DAVID J.
• • •
USE OF HEPARIN IN DISTINGUISHING PLASMAKALLIKREIN FROM PF/DIL,
AD-629 401 FLD. 6/5

•MCCOY, WILLIAM K., JR.
• • •
INVESTIGATION OF 'PREDICTOR' DISPLAYS FORORBITAL RENDEZVOUS, PROGRAM SUMMARY.
AD-629 467 FLD. 22/3

•MCGEE, ARTHUR A.
• • •
CIVIL DEFENSE IN GERMANY,
AD-629 706 FLD. 15/3

•MCGEOUGH, P. L.
• • •
DEVELOPMENT OF TRANSISTOR-VARACTOR DIODECAPABLE OF 5 WATTS OUTPUT AT 2.3 GIGACYCLES.
AD-629 566 FLD. 9/1

•MCGOFF, M. J.
• • •
POTASSIUM SUPEROXIDE ATMOSPHERE CONTROLUNIT.
AD-629 596 FLD. 6/11

•MCGRATH, JAMES J.
• • •
GEOGRAPHIC ORIENTATION IN AIRCRAFT PILOTS:METHODOLOGICAL ADVANCEMENT.
AD-629 616 FLD. 1/2

•MCLANAHAN, JOHN W.
• • •
DISPLACEMENT: SOCIAL AND PSYCHOLOGICALPROBLEMS.
AD-629 519 FLD. 5/11

•MCMURTRY, B. J.
• • •
TECHNIQUES FOR SUPER-MODE OSCILLATION.
AD-629 845 FLD. 20/5

•MCWILLIAMS, G. E.
• • •
CHEMOELECTRIC ENERGY CONVERSION FOR NONAQUEOUS RESERVE BATTERIES.
AD-629 811 FLD. 10/3

•MEDVED, D. B.
• • •
RESEARCH OF ION IMPLANTATION DOPINGTECHNIQUES.
AD-629 548 FLD. 20/12

•MEHLMAN, MA A.
• • •
METABOLISM OF CARNITINE IN COLDACCLIMATED RATS,
AD-629 795 FLD. 6/19

•MEREND, M.
• • •
USS OGDEN (LPD-5). NOISE LEVEL SURVEY SHIP'SSPACES.
AD-629 283 FLD. 13/10

•METCALF, EDWARD A.
• • •
THE WISWESSER LINE-NOTATION: ANINTRODUCTION.
AD-629 529 FLD. 7/3

•MEYERHOF, W. E.
• • •
0 DEGREE YIELD OF GAMMA RAYS IN THE T(P,GAMMA)4 HE REACTION.
AD-629 631 FLD. 20/8

•MICHAELS, DANIEL W.
• • •
THE LOWEST ELECTRON DENSITY NECESSARYFOR WAVE REFLECTION FROM THE IONOSPHERICD-LAYER,
AD-629 462 FLD. 4/1

•MIDTDAL, JOHN
• • •
PERTURBATION THEORY EXPANSIONS THROUGH2ISTORDER OF THE NON-RELATIVISTIC ENERGIESOF THE TWO-ELECTRON SYSTEMS(2P)23P AND (1S)21S,
AD-629 378 FLD. 7/4

•MIEHE, WILLIAM H.
• • •
STUDY OF PROGRAMMING DOCUMENTATION STANDARDS AND SPECIFICATIONS.
AD-629 521 FLD. 9/2

•MIKHAILOV, V. D.
• • •
DETERMINATION OF CRITICAL HEAT FLOWS DURINGTHE BOILING OF A HIGH-

BOILING HEAT TRANSFERAGENT IN PIPES,
AD-629 801 FLD. 20/13

•MILDEN, M.
• • •
A LOW-NOISE, MULTIPLE-FUNCTION, X-BANDTRAVELING-WAVE TUBE.
AD-629 911 FLD. 9/1

•MILGRAM, JEROME H.
• • •
COMPLIANT WATER WAVE ABSORBERS.
AD-629 508 FLD. 13/10

•MILLER, R. R.
• • •
A METHOD FOR THE DETERMINATION OF STRONGACID VAPORS IN THE PPM RANGE.
AD-629 296 FLD. 7/2

•MILLER, SIDNEY H.
• • •
THE MINUTEMAN MISSILE SYSTEM,
AD-629 961 FLD. 16/9

•MILLER, W. J.
• • •
RADAR INTERFERENCE EFFECTS IN THE LEMDESCENT ENGINE EXHAUST PLUME. PART I.CHEMI-IONIZATION IN THE LEM PROPELLANTSYSTEM. PART II. PREDICTION OF REFRACTIONAND ATTENUATION OF THE LEM RADAR BEAMS.
AD-629 581 FLD. 22/1

•MILLS, R. L.
• • •
AN ACOUSTIC RAY SHIP POSITIONING ANDTRACKING SYSTEM.
AD-629 459 FLD. 17/7

•MILOBEDSKI, KAROL
• • •
COMMUNICATIONS NETWORKS. PART II.DESIGNATIONS AND ABBREVIATIONS,
AD-629 821 FLD. 17/2

•MINDLIN, YA. I.
• • •
STUDY OF THE PROPERTIES AND OF THE FEASIBILITYOF USING ORGANOBOROSILICON POLYMERS AS CONSTITUENTS OF HEAT-RESISTANT ADHESIVES,
AD-629 792 FLD. 11/1

•MINNELLI, MARION A.
• • •
ANALYSIS OF THE RESPONSE OF A NONLINEARDIFFERENTIAL EQUATION TO WHITE RANDOMEXCITATION.
AD-629 842 FLD. 12/1

•MITCHELLAND, E. P.
• • •
RADIATION EFFECTS ON MICROELECTRONICCIRCUITS (SEMICONDUCTOR).
AD-629 561 FLD. 9/1

•MITCHELL, T. G.
• • •
AMMONIUM TOXICITY, A POTENTIAL ARTIFACT INPREPARATION OF TOXINS.
AD-629 629 FLD. 6/13

•MITRA, ASHESH P.
• • •
DETERMINATION OF IONOSPHERIC LOSS COEFFICIENTS FROM OBSERVATIONS ON SATELLITE X-RAYFLUXES AND SUDDEN IONOSPHERIC DISTURBANCES.
AD-629 392 FLD. 4/1

•MIYAGAWA, ICHIRO
• • •
PROTON-DEUTERON EXCHANGE OF THE RADICALIN IRRADIATED SINGLE CRYSTALS OF DL-ASPARTICACID: EFFECT OF THE CRYSTAL FIELD ON THECHEMICAL REACTION,
AD-629 389 FLD. 8/1

•MOESCHWITZER, A.
• • •
THE GAAS SEMICONDUCTOR LASER,
AD-629 728 FLD. 20/5

•MOHRIG, JERRY R.
• • •
BRIDGED POLYCYCLIC COMPOUNDS. XXVIII. THEPROTON MAGNETIC RESONANCE SPECTRA OF SOMEDIBENZOBICYCLO/3.2.1/OCTADIENES,
AD-629 373 FLD. 7/3

•MOKRUSHIN, S. A.
• • •
COMPUTATION OF TEMPERATURE FIELDS ANDSTRESSES IN THE COOLED ROTOR OF A GAS TURBINEON STARTING,
AD-629 852 FLD. 21/5

•MONTROLL, ELLIOTT W.
• • •
DENATURATION AND RENATURATION OF DNA:I. EQUILIBRIUM STATISTICS OF COPOLYMERICDNA.
AD-629 491 FLD. 6/1

•MOORE, JOHN LEROY
• • •
DEVELOPMENT AND APPLICATION OF A METHODTO DETERMINE AIRCRAFT FEASIBILITY FORISOLATED AREA SUPPORT.
AD-629 689 FLD. 1/3

•MORGANSTERN, M. D.
• • •
ZERO-CUTOFF MODE IN DIELECTRIC-LOADEDCOAXIAL WAVEGUIDE,
AD-629 617 FLD. 9/1

•MORGAN, D. T.
• • •
MEASUREMENT OF THE GRUENEISEN PARAMETERAND THE INTERNAL ENERGY DEPENDENCE OF THESOLID EQUATION OF STATE FOR ALUMINUM ANDTEFLON.
AD-629 320 FLD. 20/13

•MOROZOV, I. A.
• • •
MANUFACTURE OF BASIC COMPONENTS ANDASSEMBLIES OF AIRCRAFT ENGINES,
AD-629 820 FLD. 21/5

•MORRISSETTE, JULIAN O.
• • •
GROUP PERFORMANCE AS A FUNCTION OF SIZE,STRUCTURE, AND TASK DIFFICULTY,
AD-629 322 FLD. 5/10

•MORSE, DAVID L.
• • •
LOW-FREQUENCY INSTABILITY OF PARTIALLYIONIZED PLASMA,
AD-629 357 FLD. 20/9

•MOTTIN, JAMES
• • •
THE EFFECTS OF AUDITORY STIMULATION ANDMOTOR ACTIVITY ON NUCLEIC ACIDS AND PROTEINS,
AD-629 528 FLD. 5/10
• • •
THE EFFECTS OF CHEMICAL STIMULATION ANDLEARNING ON NUCLEIC ACIDS AND PROTEINS.
AD-629 709 FLD. 5/10

•MOYER, ROBERT D.
• • •
COMMENTS ON DIFFERENTIABILITY OF SOLUTIONSOF BOUNDARY VALUE PROBLEMS.
AD-629 299 FLD. 12/1

•MOZINGO, D. P.
• • •
LIN PIAO ON 'PEOPLE'S WAR': CHINA TAKES ASECOND LOOK AT VIETNAM,
AD-629 499 FLD. 15/7

•MUNSAT, THEODORE L.
• • •
NEW EVIDENCE FOR EXCESSIVE ACCUMULATION OFZ-BAND MATERIAL IN NEMALINE MYOPATHY,
AD-629 806 FLD. 6/5

•MUTHUKRISHNAN, R.
• • •
HARTREE-FOCK CALCULATIONS OF FINITENUCLEI.
AD-629 319 FLD. 20/8

•MYSELS, KAROL J.
• • •
A STUDY OF DOUBLE LAYER REPULSION AND VANDER WAALS ATTRACTION IN SOAP FILMS,
AD-629 280 FLD. 7/4

•NACHTRIEB, NORMAN H.
• • •
BESTIMMUNG DES KLEINSTEN LONENABSTANDES INIONISCHEN SCHMELZEN MITTELS KERNRESONANZ(DETERMINATION OF THE CLOSEST APPROACH OF IONS IN IONICMELTS BY MEANS OF NUCLEAR RESONANCE),
AD-629 333 FLD. 7/4

•NAUMOFF, N. S. R.
• • •
NOISE SURVEY OF ENGINE ROOMS OF U.S.S. TRINGA.
AD-629 766 FLD. 6/19

•NAUS, D. A.
• • •
COLORIMETRIC MEASUREMENTS OF SELECTEDCOLOR CARDS,
AD-629 734 FLD. 20/6

•NEBLETT, JOHN H.
• • •
SENSITIVITY ANALYSIS OF CIVIL DEFENSESYSTEMS AND COMPONENTS. A GENERALIZEDSENSITIVITY ANALYSIS OF CD SYSTEMS.
AD-629 703 FLD. 15/3
• • •
SENSITIVITY ANALYSIS OF CIVIL DEFENSESYSTEMS AND COMPONENTS. INTRODUCTION ANDSUMMARY.
AD-629 704 FLD. 15/3

•NEDOSPASOV, A. V.
• • •
STUDYING CONDUCTIVITY OF PLASMA IN A TRANSVERSE MAGNETIC FIELD,
AD-629 839 FLD. 20/9

•NEEPER, D. A.
• • •
A SIMPLE LEVEL INDICATOR FOR LIQUID HELIUMAT ALL TEMPERATURES.
AD-629 471 FLD. 14/2

•NEPTUNE, E. M., JR.
• • •
AMMONIUM TOXICITY, A POTENTIAL ARTIFACT INPREPARATION OF TOXINS.
AD-629 629 FLD. 6/13

•NESTER, J. F.
• • •
CRYSTALS FOR OPTICAL MASER APPLICATIONS.
AD-629 558 FLD. 20/5

•NESTOR, O. H.
• • •
SYMMETRICAL LASER CRYSTALS.
AD-629 519 FLD. 20/5

•NEWHALL, H. K.

• • •
CALCULATION OF ENGINE PERFORMANCE USINGAMMONIA FUEL. II. DIESEL CYCLE.
AD-629 965 FLD. 21/9

•NEWTON, R. R.
• • •
NON-ZONAL HARMONIC COEFFICIENTS OF THEGEOPOTENTIAL FROM SATELLITE DOPPLER DATA.
AD-629 975 FLD. 8/9

•NICHOLES, P. S.
• • •
DETECTION OF AN ENZOOTIC PLAGUE FOCUS BYSEROLOGICAL METHODS,
AD-629 390 FLD. 6/5

•NICHOLSON, B. J.
• • •
RADC RELIABILITY PHYSICS NOTEBOOK,
AD-629 769 FLD. 14/9

•NIJHOF, J. K.
• • •
PARALYZING ANIMAL POISONS.
AD-629 956 FLD. 6/3

•NIMITZ, NANCY
• • •
FARM EMPLOYMENT IN THE SOVIET UNION,1928-1963,
AD-629 699 FLD. 5/3

•NISHIDA, Y.
• • •
APPLICATIONS OF THE EXACTLY SOLUBLE ONEDIMENSIONAL MODEL OF TRANSFER REACTIONS,
AD-629 637 FLD. 20/8

•NOAH, J. W.
• • •
CONCEPTS AND TECHNIQUES FOR SUMMARIZINGDEFENSE SYSTEM COSTS,
AD-629 947 FLD. 5/1

•NOBLE, STEDMAN B.
• • •
FINDING THE INVERSE AND CONNECTIONS OF ATYPE OF LARGE SPARSE MATRIX,
AD-629 674 FLD. 12/2

•NOLDEKE, G. K.
• • •
CHARGE DISTRIBUTIONS OF CA40 AND CA44 FROM250 MEV ELECTRON SCATTERING,
AD-629 272 FLD. 20/8

•NORRIS, HENRY J.
• • •
POSTIRRADIATION SARCOMAS OF THE UTERUS,
AD-629 259 FLD. 6/5

•NORRIS, H. THOMAS
• • •
INTESTINAL MANIFESTATIONS OF CHOLERA ININFANT RABBITS: A MORPHOLOGIC STUDY,
AD-629 349 FLD. 6/5

•NORTON, ROBERT J.
• • •
THE EFFECTS OF TWO TYPES OF BODY ARMOR ONBODY TEMPERATURE.
AD-629 738 FLD. 19/9

•OATES, GORDON C.
• • •
RESEARCH ON NEW CONCEPTS IN ENERGYCONVERSION.
AD-629 736 FLD. 10/2

•OELSCHLAGEL, D.
• • •
DEFORMATION CHARACTERISTICS OF METALS ANDALLOYS.
AD-629 267 FLD. 11/6

•OISHI, R. K.
• • •
STUDY OF SPECIAL BEAMSHAPING ANTENNAS.
AD-629 603 FLD. 9/5

•OKWIT, S.
• • •
STUDY OF SOLID-STATE AND TRAVELING-WAVEMASER TECHNIQUES.
AD-629 359 FLD. 20/5

•OLINER, ARTHUR A.
• • •
INVESTIGATIONS ON THE GUIDING, SCATTERING,AND RADIATION OF ELECTROMAGNETIC WAVES.
AD-629 893 FLD. 20/14

•OLSEN, FREDRIC P.
• • •
REACTION OF BICHI0(-2) WITH ARYLDIAZONIUMSALTS,
AD-629 386 FLD. 7/2

•ONAGA, KENJI
• • •
STOCHASTIC FLOW OF MESSAGES AND ITSEFFICIENT TRANSMISSION THROUGH COMMUNICATIONNETS,
AD-629 299 FLD. 9/4

•ORE, S.
• • •
PRINCIPLES OF POLYMER IMPLANT APPLICATIONS,
AD-629 621 FLD. 6/5

•ORNSTEIN, GEORGE N.
• • •
TIME, UNCERTAINTY, AND INCENTIVE VARIABLESIN COMPOSITE TASK PERFORMANCE.
AD-629 830 FLD. 5/8

•OSHIRO, FRED K.
• • •
A SOURCE DISTRIBUTION TECHNIQUE FOR THESOLUTION OF GENERAL ELECTROMAGNETICSCATTERING PROBLEMS. PHASE I REPORT,
AD-629 986 FLD. 17/9

•OSINSKA, E.
• • •
METHODS FOR CALCULATING CANNING PRODUCTIONCOSTS: ACCELERATED METHOD FOR DETERMININGMOISTURE IN DRIED VEGETABLES: STUDYING THE USEOF SORBIC ACID IN CANNING FRUIT AND VEGETABLESAND RECONSTITUTION OF VEGETABLES DRIEDBY SUBLIMATION,
AD-629 571 FLD. 6/8

•OSTERHOFF, WILLIAM E.
• • •
GEOGRAPHIC ORIENTATION IN AIRCRAFT PILOTS:METHODOLOGICAL ADVANCEMENT.
AD-629 616 FLD. 1/2

•OVERMAN, DAVID L.
• • •
EXPERIMENTAL MECHANICAL TIMER WITHDETATCHED LEVER ESCAPEMENT AND DIGITALREADOUT SYSTEM,
AD-629 796 FLD. 14/2

•OWEN, G. D. T.
• • •
A GENERAL TREATMENT OF EQUILIBRIUMCOPOLYMERIZATION,
AD-629 279 FLD. 7/4

•PALMIERI, G.
• • •
SELF MODULATING DERIVATIVE OPTICALSPECTROSCOPY. PART 2: EXPERIMENTAL.
AD-629 765 FLD. 20/6

•PANCHENKOV, G. M.
• • •
THE ROLE OF KINETIC AND DIFFUSIONAL FACTORSIN THE COMBUSTION OF FUELS IN GAS-TURBINEENGINES,
AD-629 724 FLD. 21/9

•PANNE, C. VAN DE
• • •
AN ALTERNATIVE INTERPRETATION OF THEPRIMAL-DUAL METHOD AND SOME RELATEDPARAMETRIC METHODS.
AD-629 999 FLD. 12/2

•PANZER, R. E.
• • •
CHEMOELECTRIC ENERGY CONVERSION FOR NONAQUEOUS RESERVE BATTERIES.
AD-629 811 FLD. 10/3

•PAPOULIS, A.
• • •
A SIMPLE APPROACH TO THE ZERO-CROSSINGPROBLEM.
AD-629 265 FLD. 12/1
• • •
EXPANSION OF A NON-PERIODIC PROCESS X(T) INTOA FOURIER SERIES WITH UNCORRELATED COEFFICIENTS,
AD-629 266 FLD. 12/1
• • •
ERGODICITY OF THE DISTRIBUTION FUNCTION OFA STATIONERY PROCESS,
AD-629 307 FLD. 12/1

•PARANDJUK, SERAPHIM
• • •
MIXING OF CONCENTRIC HIGH-VELOCITYAIRSTREAMS,
AD-629 809 FLD. 20/9

•PARKINSON, W. H.
• • •
LINE-REVERSAL MEASUREMENTS OFEXCITATION AND ELECTRON TEMPERATURE IN ASHOCK TUBE.
AD-629 719 FLD. 7/9

•PASSMORE, GEORGE DONALD
• • •
PROPOSED COMPUTATIONS IN THE CEREBRALCORTEX BASED ON FOURIER TRANSFORM ANDSPATIAL FILTERING TECHNIQUES.
AD-629 977 FLD. 6/16

•PATTISON, F. L. M.
• • •
THE PHOTOLYSIS OF SOME ALPHA-SUBSTITUTEDCYCLOHEXANONES,
AD-629 250 FLD. 8/1

•PATTY, RICHARD R.
• • •
ABSORPTION BY CO2 BETWEEN 6600 AND7125/CM (1.4 MICRON REGION).
AD-629 568 FLD. 3/3

•PAYNE, AUBREY H.
• • •
ON MEASURING THE VALUE OF INFORMATION,WITH IMPLICATIONS FOR COMMUNICATIONS SYSTEMS,
AD-629 785 FLD. 9/4

•PAYNE, PETER R.
• • •
PERSONNEL RESTRAINT AND SUPPORT SYSTEMDYNAMICS.
AD-629 987 FLD. 6/2

•PEARCE, D. C.
• • •
A SIMPLE LEVEL INDICATOR FOR LIQUID HELIUMAT ALL TEMPERATURES.
AD-629 471 FLD. 14/2

•PEARSON, CARL M.
• • •
NEW EVIDENCE FOR EXCESSIVE ACCUMULATION OFZ-BAND MATERIAL IN NEMALINE MYOPATHY,

AD-629 806 FLD. 6/5

•PELEG, BEZALEL
• • •
UTILITY FUNCTIONS OF MONEY FOR CLEARGAMES.
AD-629 672 FLD. 12/2

•PEREYRA, VICTOR
• • •
ON IMPROVING AN APPROXIMATE SOLUTION OF AFUNCTIONAL EQUATION BY DEFERRED CORRECTIONS.
AD-629 837 FLD. 12/1

•PERGAMENT, H. S.
• • •
RADAR INTERFERENCE EFFECTS IN THE LEMDESCENT ENGINE EXHAUST PLUME. PART I.CHEMI-IONIZATION IN THE LEM PROPELLANTSYSTEM. PART II. PREDICTION OF REFRACTIONAND ATTENUATION OF THE LEM RADAR BEAMS.
AD-629 981 FLD. 22/1

•PERINI, JOSE
• • •
A BEAM-SHIFTING TECHNIQUE FOR SIDE LOBEREDUCTION AND PATTERN SYNTHESIS.
AD-629 605 FLD. 20/14

•PERKINS, C. W.
• • •
RADIATION EFFECTS ON MICROELECTRONICCIRCUITS (SEMICONDUCTOR).
AD-629 561 FLD. 9/1

•PERKINS, DAVID R.
• • •
A RADIOISOTOPIC POWER SUPPLY FOR THE SUNBLAZER SPACE PROBE.
AD-629 689 FLD. 18/14

•PERKINS, LLOYD E.
• • •
ACOUSTIC SPREADING LOSS IN AN INHOMOGENEOUSMEDIUM,
AD-629 959 FLD. 20/1

•PETERSON, D. W.
• • •
ERROR IN DIELECTRIC-FILM ELLIPSOMETERDETERMINATIONS DUE TO NEGLECT OF FILMABSORPTION,
AD-629 341 FLD. 20/6

•PETERS, ALEC
• • •
A BIBLIOGRAPHY (WITH ABSTRACTS) ON GASLUBRICATED BEARINGS.
AD-629 288 FLD. 13/9

•PFENNINGER, W.
• • •
INVESTIGATION OF METHODS FOR RE-ESTABLISHMENT OF A LAMINAR BOUNDARY LAYER FROMTURBULENT FLOW.
AD-629 488 FLD. 20/4

•PHILLIPS, D. E.
• • •
DEVELOPMENT OF PROBES FOR MEASURING THEMAXIMUM RADIUS OF UNDERWATER EXPLOSIONBUBBLES.
AD-629 910 FLD. 14/2

•PIAN, LOUIS DE
• • •
ON THE STABILITY AND DYNAMIC BEHAVIOR OFCASCADED THERMOELECTRIC DEVICES,
AD-629 828 FLD. 9/1

•PIEHLER, HENRY R.
• • •
THE INTERIOR ELASTIC STRESS FIELD IN A CONTINUOUS, CLOSE-PACKED FILAMENTARYCOMPOSITE MATERIAL UNDER UNIAXIAL TENSION,
AD-629 572 FLD. 11/4

•PIEK, T.
• • •
PARALYZING ANIMAL POISONS.
AD-629 956 FLD. 6/3

•PILLING, RICHARD L.
• • •
CARBAMETALLIC BORON HYDRIDE DERIVATIVES.III. THE PI-C5H5FE(PI-B9C2H11)SYSTEM,
AD-629 388 FLD. 7/2
• • •
THE PREPARATION AND REARRANGEMENT OF THETHREE ISOMERIC B2OH18(-4)IONS,
AD-629 391 FLD. 7/2

•PINDY, FREDERICK
• • •
OPTICAL DETECTION: COMPILATION OF ABSTRACTS.
AD-629 939 FLD. 20/6

•PINKEL, B.
• • •
THE IMPACT OF THE HIGH DEVELOPMENT COSTOF ADVANCED FLIGHT PROPULSION SYSTEMS ONDEVELOPMENT POLICY,
AD-629 856 FLD. 5/1

•PITCHFORD, J. D.
• • •
WAGE POLICY AND DISTRIBUTION THEORY.
AD-629 539 FLD. 5/3

•PLANK, ROBERT VICTOR
• • •
OPTICAL FLAT PLACEMENT ON ALMOST SPHERICALGYRO ROTORS.
AD-629 661 FLD. 17/7

•PLORDE, DONALD E.
• • •
BRIDGED POLYCYCLIC COMPOUNDS. XXVIII. THEPROTON MAGNETIC RESONANCE SPECTRA OF SOMEDIBENZOBICYCLO(3.2.1)OCTADIENES,
AD-629 373 FLD. 7/3

•PODZEI, A. V.
• • •
MANUFACTURE OF BASIC COMPONENTS ANDASSEMBLIES OF AIRCRAFT ENGINES,
AD-629 820 FLD. 21/5

•POE, R. H.
• • •
THE EFFECT OF ACUTE AND CHRONIC COLDEXPOSURE ON TISSUE LIPIDS IN THE RAT,
AD-629 799 FLD. 6/19

•POLACK, FRANK M.
• • •
INCORPORATION OF TRITIATED THYMIDINE BYOCULAR TUMORS IN VITRO,
AD-629 919 FLD. 6/5
• • •
EL DESTINO DE TRANSPLANTE DE CORNEA(RESULTS OF CORNEA TRANSPLANTS),
AD-629 619 FLD. 6/5

•POLATTY, JAMES M.
• • •
LABORATORY DESIGN, ANALYSIS, AND FIELDCONTROL OF GROUTING MIXTURES EMPLOYED ATA NUCLEAR TEST IN SALT.
AD-629 529 FLD. 18/3

•POLLON, GERALD E.
• • •
ON THE MEASUREMENT OF RANDOMLY TIMEVARYING LINEAR SYSTEMS,
AD-629 693 FLD. 9/4

•PONTARELLI, DONALD A.
• • •
CONTINUOUS FACSIMILE SCANNER EMPLOYINGFIBER OPTICS.
AD-629 696 FLD. 17/2

•PORTE, HOWARD A.
• • •
POTENTIOSTATIC CORROSION STUDIES OF IRON,TYPE-304 AND TYPE-321 STAINLESS STEEL.
AD-629 269 FLD. 11/6

•PORTNEY, CHARLES W.
• • •
ENVIRONMENTAL CONTROL AND INSTALLATION OFA PRECISION AERIAL CAMERA.
AD-629 742 FLD. 14/5

•PORTNOY, SEYMOUR
• • •
FLUORINATED NITROGEN HETEROCYCLES VIACYCLIZATION. I. TRIFLUOROMETHYL-2-PYRIDONESFROM FLUORINATED 1,3-DICARBONYLS ANDCYANOACETAMIDE.
AD-629 699 FLD. 7/3

•PRICE, HAROLD M.
• • •
NEW EVIDENCE FOR EXCESSIVE ACCUMULATION OFZ-BAND MATERIAL IN NEMALINE MYOPATHY,
AD-629 806 FLD. 6/5

•PRICE, T. R.
• • •
PHOTODEGRADATION OF HIGH POLYMERS INSOLUTION. PART II. SOLVENT EFFECTS IN THEPHOTOLYSIS OF POLYSTYRENE.
AD-629 593 FLD. 8/1

•PRINCEN, H. M.
• • •
OPTICAL INTERFERENCE IN CURVED SOAP FILMS,
AD-629 909 FLD. 7/4

•PRITCHARD, ROBERT J.
• • •
REVIEW OF RECENTLY DEVELOPED LIQUIDAMMONIA BATTERIES,
AD-629 768 FLD. 10/3

•PRYOR, A. J.
• • •
A STUDY OF THE USAF SCHOOL OF AEROSPACEMEDICINE HUMAN CENTRIFUGE.
AD-629 546 FLD. 14/2

•PUGH, EMERSON M.
• • •
HALL EFFECTS, RESISTIVITY, AND THERMOPOWERIN FE AND FE(1-X)NI(X) FOR X=0 TO 0.2,
AD-629 381 FLD. 20/3

•PURDY, WILLIAM C.
• • •
THE ATOMIC ABSORPTION SPECTROSCOPY OFCHROMIUM,
AD-629 396 FLD. 7/4

•PUTTASWAMY, N. G.
• • •
0 DEGREE YIELD OF GAMMA RAYS IN THE T(P,GAMMA)4 HE REACTION.
AD-629 631 FLD. 20/8

•PUZYREWSKI, R.
• • •
AN ANALYSIS OF THE RESULTS OF INVESTIGATIONSOF A MODEL TURBINE STAGE USING COMPUTERS,
AD-629 836 FLD. 10/1

•QUADE, E. S.
• • •
MILITARY ANALYSIS,
AD-629 963 FLD. 15/7

•QUANDT, RICHARD E.
• • •
NONLINEAR SIMULTANEOUS EQUATIONS: ESTIMATION AND PREDICTION.
AD-629 294 FLD. 9/3

•RACCAH, PAUL M.
• • •
PREPARATION AND PARAMAGNETISM OF THE RAREEARTH TRIFLUORIDES,
AD-629 722 FLD. 7/2

•RAMACHANDRAN, R.
• • •
QUASI-FREE PROTON SCATTERING IN LIGHT NUCLEIAT 460 MEV,
AD-629 318 FLD. 20/8

•RAMASUBRAMANIAN, N.
• • •
INFRARED STUDY OF THE NATURE OF THE HYDROXYLGROUPS ON THE SURFACE OF POROUS VYCOR GLASS.
AD-629 595 FLD. 7/4

•RASCH, PHILIP J.
• • •
THE EFFECTS OF TWO TYPES OF BODY ARMOR ONBODY TEMPERATURE.
AD-629 738 FLD. 19/4

•RASOF, BERNARD
• • •
A 'STATIC' SOLUTION TO A 'DYNAMIC' PROBLEM INACQUISITION PROBABILITY,
AD-629 677 FLD. 19/1

•RAYMOND, FLOYD A.
• • •
REACTIVE INTERMEDIATES IN THE BICYCLO/3.1.0/HEXYL AND BICYCLO/3.1.0/ HEXYLIDENE SYSTEMS.I. THE ACID-CATALYZED ADDITION OF METHANOLAND ACETIC ACID TO BICYCLO/3.1.0/HEXENE-2,
AD-629 369 FLD. 7/3

•RAY, H. W.
• • •
RADC RELIABILITY PHYSICS NOTEBOOK,
AD-629 769 FLD. 14/4

•READ, LESLIE W.
• • •
LOW-NOISE L-BAND TRANSISTOR AMPLIFIER.
AD-629 619 FLD. 9/5

•REBHOLZ, M. J.
• • •
BUCKLING STRENGTH OF CURVED BERYLLIUMPANELS IN COMPRESSION,
AD-629 649 FLD. 20/11

•REDDY, DRONNADULA V.
• • •
RESPONSE OF A CYLINDRICAL SHELL TO AN ELASTICWAVE,
AD-629 367 FLD. 20/11

•REDINGTON, R. L.
• • •
SF4 AND SOF2: INFRARED EVIDENCE FOR DIMERFORMATION AT LOW TEMPERATURES,
AD-629 402 FLD. 7/2

•REESE, B. O.
• • •
SHOCK INITIATION OF LOW-DENSITY PRESSINGS OFAMMONIUM PERCHLORATE,
AD-629 537 FLD. 19/1

•REEVES, E. M.
• • •
LINE-REVERSAL MEASUREMENTS OFEXCITATION AND ELECTRON TEMPERATURE IN ASHOCK TUBE.
AD-629 719 FLD. 7/4

•REEVES, ROBERT R.
• • •
FORMATION OF EXCITED NO AND N2 BY WALLCATALYSIS,
AD-629 802 FLD. 7/4

•REFOJO, M. F.
• • •
HYDROGELS FROM 2-HYDROXYETHYL METHACRYLATE AND PROPYLENE GLYCOL MONOACRYLATE,
AD-629 480 FLD. 11/9
• • •
GRAFT COPOLYMERIZATION OF VINYLPYRROLIDONEONTO POLYDIMETHYLSILOXANE,
AD-629 482 FLD. 11/9
• • •
USES OF PLASTICS IN OPHTHALMOLOGY,
AD-629 502 FLD. 6/5
• • •
PERMEABILITIES OF POLYMERS AND THEIR MEDICALAPPLICATIONS: CORNEAL POLYMER IMPLANTS,
AD-629 503 FLD. 6/5
• • •
STERILIZATION OF POLYMERS,
AD-629 504 FLD. 6/12

•REID, F. J.
• • •
HIGH-MOBILITY LOW-MELTING-POINT GROUP III-VCOMPOUND SEMICONDUCTORS.
AD-629 562 FLD. 20/12

•REISH, DONALD J.
• • •
BENTHIC POLYCHAETOUS ANNELIDS FROM BERING,CHUKCHI, AND BEAUFORT SEAS,
AD-629 422 FLD. 6/3

•RENARD, DAVID E.
• • •
THE WISNESSER LINE-NOTATION: ANINTRODUCTION.
AD-629 525 FLD. 7/3

•REPP, ROBERT MATHIAS, III.
• • •
UNITED NATIONS DISARMAMENT NEGOTIATIONS,1953-1957.
AD-629 666 FLD. 5/4

•RHEA, BOB D.
• • •
THE RELATIONSHIP OF OCS GRADES TO OFFICERFITNESS REPORT MARKS.
AD-629 609 FLD. 5/9

•RHEINSTEIN, JOHN
• • •
SCATTERING OF SHORT PULSES OF ELECTROMAGNETIC WAVES.
AD-629 732 FLD. 20/14

•RICCIO, DAVID C.
• • •
THE EFFECTS OF ENVIRONMENTAL TEMPERATURECHANGES ON THE EKG OF THE SQUIRREL MONKEY(SAIMIRI SCIUREUS),
AD-629 527 FLD. 6/6

•RICE, THOMAS
• • •
APPLICATION OF GAS CHROMATOGRAPHY TOANALYSES OF ARMY WEAPONS MATERIALS: IIANALYSIS OF FATTY ACIDS.
AD-629 619 FLD. 7/3

•RIDLON, JAMES B.
• • •
OFFSHORE GRAVITY AND MAGNETIC ANOMALIESIN THE SANTA BARBARA CHANNEL, CALIFORNIA.
AD-629 700 FLD. 8/4

•RIVERA, JULIO C.
• • •
CURRENT PROBLEMS IN ENLISTED SUBMARINEPHYSICAL EXAMINATIONS,
AD-629 779 FLD. 5/9

•ROBERTS, SIDNEY
• • •
STIMULATION OF STEROID C-11-BETA AND C-18HYDROXYLATIONS IN RAT ADRENAL HOMOGENATESBY ADENOSINE 3', 5'-PHOSPHATE VIA A MECHANISMNOT REQUIRING ENDOGENOUS PRECURSOR, GLYCOGEN PHOSPHORYLATION OR NADPH GENERATION,
AD-629 412 FLD. 6/1

•ROBINSON, CHARLES C.
• • •
EXCITED STATE SATURABLE ABSORBER FOR1.06 MICRON WAVELENGTH,
AD-629 361 FLD. 20/6

•ROBINSON, D. W.
• • •
FAR-INFRARED SPECTRUM OF TETRAHYDROFURAN:SPECTROSCOPIC EVIDENCE FOR PSEUDOROTATION,
AD-629 492 FLD. 7/3

•ROBINSON, T. W.
• • •
LIN PIAO ON 'PEOPLE'S WAR': CHINA TAKES ASECOND LOOK AT VIETNAM,
AD-629 495 FLD. 15/7

•ROCKOWITZ, M.
• • •
MEASUREMENT OF THE GRUENEISEN PARAMETERAND THE INTERNAL ENERGY DEPENDENCE OF THESOLID EQUATION OF STATE FOR ALUMINUM ANDTEFLON.
AD-629 320 FLD. 20/13

•ROGERS, H. C.
• • •
INVESTIGATION OF THE NATURE OF STRUCTURALDAMAGE IN METAL-FORMING PROCESSES.
AD-629 297 FLD. 13/8

•ROGERS, ROY L.
• • •
SHF SEQUENTIAL LOBING SYSTEM.
AD-629 304 FLD. 9/5
• • •
A MODEST PROPOSAL: OR TECHNICAL ASSISTANCEIN REVERSE,
AD-629 460 FLD. 5/4
• • •
THE INDIAN ECONOMY AND DEFENSE,
AD-629 778 FLD. 5/3

•ROSNER, DANIEL E.
• • •
KINETICS OF THE ATTACK OF MOLYBDENUM BYDISSOCIATED CHLORINE,
AD-629 543 FLD. 7/4

•ROTHSCHILD, B.
• • •
ON TWO COMMODITY NETWORK FLOWS.
AD-629 500 FLD. 12/2
• • •
FEASIBILITY OF TWO COMMODITY NETWORK FLOWS,
AD-629 501 FLD. 12/2

•ROYDEN, H. L.
• • •
RIEMANN SURFACES WITH THE ABSOLUTE ABMAXIMUM PRINCIPLE,
AD-629 394 FLD. 12/1

•RUBIN, H.
• • •
FIRST PASSAGE TIMES AND OUTER ANALYSIS OFCONTINUOUS PARAMETER MARKOV CHAINS.
AD-629 498 FLD. 12/1

•RUDLOFF, WINFRIED
• • •
A FEASIBILITY STUDY TO INCREASE THE ACTIVITYOF OXIDES WITH OXYGEN AND

TO LOWER THEIGNITION TEMPERATURE OF SLURRY METALS.
AD-629 940 FLD. 21/9.2

•RULON, D. B.
• • •
GOODPASTURE'S SYNDROME. A CLINICOPATHOLOGICENTITY.
AD-629 339 FLD. 6/5

•RUMYANTSEV, V. V.
• • •
LYAPUNOV'S METHOD OF INVESTIGATING THESTABILITY OF MOTION OF RIGID BODIES WITHLIQUID-FILLED CAVITIES,
AD-629 800 FLD. 20/11

•RUSSELL, J. W.
• • •
FAR-INFRARED SPECTRUM OF TETRAHYDROFURAN:SPECTROSCOPIC EVIDENCE FOR PSEUDOROTATION,
AD-629 492 FLD. 7/3

•RUSSELL, PHILIP G.
• • •
ZEEMAN SPLITTING OF NARROW LINES INCRYSTALLINE MNF2, FEF2, AND COF2. EVIDENCEFOR SPIN-WAVE EXCITATIONS.
AD-629 803 FLD. 7/4

•RUST, J. H., JR.
• • •
DETECTION OF AN ENZOOTIC PLAGUE FOCUS BYSEROLOGICAL METHODS,
AD-629 350 FLD. 6/5

•RUTTENBERG, ROBERT
• • •
SHF SEQUENTIAL LOBING SYSTEM.
AD-629 304 FLD. 9/5

•RYAN, MICHAEL JAMES
• • •
WATER RECOVERY FROM HUMAN LIQUID WASTESBY DISTILLATION AND CHEMICAL OXIDATION.
AD-629 671 FLD. 13/2

•SALANT, RICHARD F.
• • •
MECHANISMS OF COMBUSTION INSTABILITY,
AD-629 834 FLD. 21/2

•SALERNO, V. L.
• • •
THE EFFECT OF STRUCTURAL DAMPING ON THEACOUSTICAL FIELD SURROUNDING A SUBMERGEDVIBRATING SANDWICH SHELL,
AD-629 442 FLD. 20/11

•SAMUEL, PARKASH
• • •
BIBLIOGRAPHY ON PHYSICAL OCEANOGRAPHY OFTHE INDIAN OCEAN.
AD-629 466 FLD. 8/10

•SANDERS, ROBERT W.
• • •
THE SERODIAGNOSIS OF EARLY SYPHILIS: HOW TOUTILIZE THE NEWER LABORATORY TESTS,
AD-629 347 FLD. 6/5

•SAVAGE, I. RICHARD
• • •
SURVEILLANCE PROBLEMS: WIENER PROCESSES,
AD-629 673 FLD. 12/2

•SCALA, SINCLAIRE M.
• • •
THE REFLECTION OF A SHOCK WAVE AT ASURFACE.
AD-629 472 FLD. 20/4

•SCANLON, JOHN E.
• • •
KOREAN HEMORRHAGIC FEVER,
AD-629 247 FLD. 6/5

• • •
DISTRIBUTION IN ALTITUDE OF MOSQUITOES INNORTHERN THAILAND,
AD-629 261 FLD. 6/3

•SCHAEFER, JOHN F.
• • •
ON THE BOUNDED CONTROL OF SOME UNSTABLEMECHANICAL SYSTEMS,
AD-629 618 FLD. 16/1

•SCHAFFER, MARVIN B.
• • •
LANCHESTER MODELS FOR PHASE II INSURGENCY,
AD-629 497 FLD. 15/7

•SCHAFFLING, O. G.
• • •
SIB POLYMER DEVELOPMENT.
AD-629 949 FLD. 11/10

•SCHALLERT, W. L.
• • •
FREQUENCY DISTRIBUTIONS OF UPPER WINDS INTHE GREENLAND AREA.
AD-629 909 FLD. 4/2

•SCHALL, R. R.
• • •
A PRODUCT ENGINEERING MEASURE FOR THEIMPROVEMENT OF PRODUCTION TECHNIQUES TOINCREASE THE RELIABILITY AND TO IMPROVEPRODUCT CAPABILITY OF HIGH VOLTAGE MINIATURESILICON RECTIFIERS.
AD-629 858 FLD. 9/1

•SCHILLER, RAYMOND
• • •
STUDY OF PROGRAMMING DOCUMENTATION STANDARDS AND SPECIFICATIONS.
AD-629 921 FLD. 9/2

•SCHILLER, T. R.
• • •
ELECTRONICALLY STEERABLE ARRAY: CHANGE A.
AD-629 791 FLD. 9/5

•SCHLESSINGER, M.
• • •
ON MAPPINGS FOR MODULAR ARITHMETIC, II.
AD-629 489 FLD. 9/2

•SCHROEDER, H. A.
• • •
SIB POLYMER DEVELOPMENT.
AD-629 949 FLD. 11/10

•SCHROEDER, J. B.
• • •
CRYSTALS FOR OPTICAL MASER APPLICATIONS.
AD-629 958 FLD. 20/5

•SCHULTZ, ROGER L.
• • •
QUALIFICATION OF THRUSTER, CARTRIDGEACTUATED, XM25.
AD-629 425 FLD. 19/1

•SCHWAAB, D.
• • •
ON THE BROMOPYRENES,
AD-629 329 FLD. 7/3

•SCHWAB, H. A.
• • •
THE PRESENT STATE OF THE NRL RF DISCHARGEINVESTIGATION.
AD-629 455 FLD. 19/1

•SCHWEPPE, FRED C.
• • •
GRADIENT MATRICES AND MATRIX CALCULATIONS.
AD-629 426 FLD. 12/1

•SCHWIDERSKI, ERNST W.
• • •
ATMOSPHERIC CONVECTION PRODUCED BY LOCALHEATING OR COOLING OF A HORIZONTAL SURFACE,
AD-629 774 FLD. 4/2

•SCOTT, B. W.
• • •
DEVELOPMENT OF PROBES FOR MEASURING THEMAXIMUM RADIUS OF UNDERWATER EXPLOSIONBUBBLES,
AD-629 510 FLD. 14/2

•SEELY, L. B.
• • •
SHOCK INITIATION OF LOW-DENSITY PRESSINGS OFAMMONIUM PERCHLORATE,
AD-629 537 FLD. 19/1

•SEIDERMAN, M.
• • •
PRINCIPLES OF POLYMER IMPLANT APPLICATIONS,
AD-629 621 FLD. 6/5

•SELTZER, MERLYN L.
• • •
GEOGRAPHIC ORIENTATION IN AIRCRAFT PILOTS:METHODOLOGICAL ADVANCEMENT.
AD-629 616 FLD. 1/2

•SEUBERT, JOHN L.
• • •
BIOLOGICAL STUDIES OF THE PROBLEM OFBIRD HAZARD TO AIRCRAFT.
AD-629 464 FLD. 1/2

•SHAPLEY, LLOYD
• • •
NOTES ON N-PERSON GAMES VII. CORES OF CONVEXGAMES,
AD-629 310 FLD. 12/2

•SHCHENNIKOV, V. V.
• • •
CALCULATION OF A LAMINAR BOUNDARY LAYERFOR SUBLIMABLE SURFACE,
AD-629 761 FLD. 20/4

•SHEAR, LEROY
• • •
PERITONEAL FLUID ABSORPTION. I. EFFECT OFDEHYDRATION ON KINETICS,
AD-629 393 FLD. 6/16

•SHEA, JAMES P.
• • •
STUDY OF PROGRAMMING DOCUMENTATION STANDARDS AND SPECIFICATIONS.
AD-629 921 FLD. 9/2

•SHEA, JOHN J.
• • •
RADAR SCATTERING FROM SATELLITE WAKES.
AD-629 490 FLD. 17/9

•SHEEHY, T. W.
• • •
NUCLEOPROTEIN CHANGES IN THE INTESTINALMUCOSA OF PATIENTS WITH TROPICAL SPRUE,
AD-629 623 FLD. 6/5

•SHILLIDAY, T. S.
• • •
RADC RELIABILITY PHYSICS NOTEBOOK.
AD-629 769 FLD. 14/4

•SHIPUK, I. YA.
• • •
STUDYING CONDUCTIVITY OF PLASMA IN A TRANSVERSE MAGNETIC FIELD,
AD-629 839 FLD. 20/9

•SHIRLEY, HENRY GARNETT
• • •
THE EFFECT OF CHEMICAL WETTING AGENTS ONTHE COMPACTION OF CLAY AND SILT SOILS.
AD-629 699 FLD. 8/13

•SHOONMAKER, RICHARD C.
• • •
VAPORIZATION CATALYSIS. THE DECOMPOSITIONOF GALLIUM NITRIDE,
AD-629 389 FLD. 7/4

•SHORE, BRUCE W.
• • •
COMPARISON OF ATOMIC LS-COUPLING LINE ANDMULTIPLET STRENGTHS WITH OBSERVATIONS OF FE I.
AD-629 279 FLD. 3/2
• • •
METHOD FOR CALCULATING MATRIX ELEMENTSBETWEEN CONFIGURATIONS WITH SEVERAL OPEN ISHELLS.
AD-629 276 FLD. 7/4

•SHRACK, R.
• • •
0 DEGREE YIELD OF GAMMA RAYS IN THE T(P,GAMMA)4 HE REACTION.
AD-629 631 FLD. 20/8

•SHREEVE, JEAN'NE M.
• • •
NEW HYPOFLUORITES CONTAINING NITROGEN.
AD-629 691 FLD. 7/2

•SHTRIKMAN, S.
• • •
A WICK'S THEOREM FOR SPIN OPERATORS, WITHAN APPLICATION TO SPIN WAVES IN ANTIFERROMAGNETS.
AD-629 720 FLD. 20/3

•SHULER, R. L.
• • •
THE EFFECT OF LIGHT INTENSITY AND THICKNESSOF CULTURE SOLUTION ON OXYGEN PRODUCTIONBY ALGAE.
AD-629 532 FLD. 6/11

•SHUNTOV, V. P.
• • •
SEA SNAKES,
AD-629 640 FLD. 8

•SHURA-BURA, M. R.
• • •
A SYSTEM FOR PROGRAMMING AUTOMATION,
AD-629 726 FLD. 9/2

•SIEGEL, ROBERT
• • •
INVESTIGATION OF GERMANIUM DIODES FORTHERMO-PHOTOVOLTAIC ENERGY CONVERTORS.
AD-629 313 FLD. 10/1

•SILVIS, JOHN W.
• • •
THE RESPONSE OF A SIMULATED DETACHEDRETINA TO VARIOUS DYNAMIC FORCES.
AD-629 662 FLD. 6/5

•SIMANEK, E.
• • •
COVALENCY PARAMETERS AND THE G FACTORFOR NI(2+): KMGF3,
AD-629 999 FLD. 7/4

•SIMON, R. T.
• • •
PARALYZING ANIMAL POISONS.
AD-629 956 FLD. 6/3

•SIMPSON, JAMES H.
• • •
PUMPED TRANSFORMER LASERS.
AD-629 981 FLD. 20/5

•SINGER, ARNOLD
• • •
PREDICTION OF REENLISTMENT USING REGRESSIONESTIMATION OF EVENT PROBABILITIES (REEP).
AD-629 786 FLD. 5/9

•SINK, H. RODNEY
• • •
A SENSITIVITY ANALYSIS OF SELECTED PARAMETERS BASED ON 8 SMSA'S.
AD-629 702 FLD. 15/5
• • •
SENSITIVITY ANALYSIS OF CIVIL DEFENSESYSTEMS AND COMPONENTS. INTRODUCTION ANDSUMMARY.
AD-629 704 FLD. 15/5

•SKLYAREV, L.
• • •
CABBAGE THERAPY. MEDICINAL PROPERTIES OFTHE PLANTS ALOE AND CALENDULA,
AD-629 584 FLD. 6/3

•SLADKOV, A. M.
• • •
SYNTHESIS AND PROPERTIES OF ORGANOELEMENTALPOLYMERS WITH SILICON, GERMANIUM, AND TININ THE CHAIN,
AD-629 729 FLD. 7/3

•SLEEMAN, H. KENNETH
• • •
BILIRUBIN-CARBON-14 METABOLISM IN ISOLATEDINTESTINAL LOOPS,
AD-629 419 FLD. 6/5

•SLICHTER, L. B.
• • •
CRUSTAL STRUCTURE IN THE WISCONSIN AREA,
AD-629 629 FLD. 8/11

•SMELSER, GEORGE K.
• • •
EL DESTINO DE TRANSPLANTE DE CORNEA(RESULTS OF CORNEA TRANSPLANTS),
AD-629 619 FLD. 6/5

•SMITH, A. M. O.
• • •
THE EFFECTS OF ELASTICITY UPON THE PRESSURESWITHIN A LIQUID FILLED TUBE WHEN SUBJECTED TOFLUCTUATING FORCES,
AD-629 419 FLD. 6/19

•SMITH, A. W. H.
• • •
PRODUCTION ENGINEERING MEASURE FOR IMPROVED RELIABILITY OF SOLID ELECTROLYTETANTALUM CAPACITORS.
AD-629 798 FLD. 9/1

•SMITH, GRANT GILL
• • •
PYROLYSIS STUDIES. XV. THERMAL RETROGRADEALDOL CONDENSATION OF BETA-HYDROXY KETONES,
AD-629 379 FLD. 7/4

•SMITH, JAMES H.
• • •
THE USE OF STATISTICAL CONTROL CHARTTECHNIQUES IN A SICK LEAVE CONTROL PROGRAM.
AD-629 747 FLD. 5/9

•SMITH, J. G.
• • •
STUDY OF SOLID-STATE AND TRAVELING-WAVEMASER TECHNIQUES.
AD-629 359 FLD. 20/5

•SMITH, KIRK M.
• • •
INTER-PHASE TIME INTERVALS IN SEWARD'SLATENT LEARNING EXPERIMENT,
AD-629 296 FLD. 5/10

•SMITH, PAUL F.
• • •
AUDITORY FATIGUE UNDERWATER AT 1900 CYCLESPER SECOND.
AD-629 793 FLD. 6/19

•SMITH, ROBERT G.
• • •
THE APPLICATION OF FLOQUET THEORY TO THECOMPUTATION OF SMALL ORBITAL PERTURBATIONSOVER LONG TIME INTERVALS USING THE TSCHAUNERHEMPEL EQUATIONS,
AD-629 659 FLD. 22/3

•SMYTH, CHARLES P.
• • •
RESEARCH ON DIELECTRIC PROPERTIES AND THESTRUCTURE OF MATTER.
AD-629 439 FLD. 7/4

•SOFFER, STEPHEN
• • •
HALL EFFECTS, RESISTIVITY, AND THERMOPOWERIN FE AND FE(1-X)NI(X) FOR X=0 TO 0.2,
AD-629 381 FLD. 20/3

•SOFRONOV, YU. D.
• • •
ON THE RATE OF SPREADING OF FATIGUE CRACKS,
AD-629 758 FLD. 20/11

•SOLODOVNIK, V. D.
• • •
STUDY OF THE PROPERTIES AND OF THE FEASIBILITYOF USING ORGANOBOROSILICON POLYMERS AS CONSTITUENTS OF HEAT-RESISTANT ADHESIVES,
AD-629 752 FLD. 11/1

•SONNENBURG, ROBERT E.
• • •
STUDIES OF CILIARY MUCUS TRANSPORT IN ACLOSED CABIN ATMOSPHERE.
AD-629 759 FLD. 6/11

•SOPER, WILLIAM L.
• • •
AN OPTICAL SURFACE DISCRIMINATOR,
AD-629 286 FLD. 20/6

•SOUTHGATE, P. D.
• • •
MECHANICAL RELAXATION OF A POINT DEFECT INMAGNESIUM OXIDE,
AD-629 383 FLD. 20/2

•SPINDLER, WILLIAM C.
• • •
REVIEW OF RECENTLY DEVELOPED LIQUIDAMMONIA BATTERIES,
AD-629 768 FLD. 10/3

•SPRINZ, HELMUTH
• • •
INTESTINAL MANIFESTATIONS OF CHOLERA ININFANT RABBITS: A MORPHOLOGIC STUDY,
AD-629 349 FLD. 6/5

•STAFFORD, T.
• • •
EVALUATION OF ELECTRON MULTIPLIER TUBE ANDCIRCUITRY.
AD-629 588 FLD. 9/1

•STARKS, R. J.
• • •
RESEARCH INVESTIGATIONS IN THE PHYSICALCHEMISTRY AND METALLURGY OF SEMICONDUCTINGMATERIALS.
AD-629 291 FLD. 20/12

•STEDRY, A. C.
• • •
PROPOSED RESEARCH ON MANAGEMENT INFORMATION SYSTEMS.
AD-629 730 FLD. 5/1

•STEELMAN, DONALD LOUIS
• • •
AN ANALYSIS TO DETERMINE IF THE DEPARTMENTOF DEFENSE SHOULD OWN OR LEASE COMMUNICATIONS SATELLITES.

AD-629 678 FLD. 17/2.1

•STEINEMANN, JOHN A.
• • •
AN INVESTIGATION OF THE UTILITY OF A CONVERSIONCHART AS A JOB AID FOR ELECTRONICS TECHNICIANS.
AD-629 608 FLD. 5/9

•STEIN, R. S.
• • •
DYNAMIC BIREFRINGENCE AND MECHANICALLOSS SPECTRA OF CRYSTALLINE POLYMERS,
AD-629 382 FLD. 11/9

•STERMAN, L. S.
• • •
DETERMINATION OF CRITICAL HEAT FLUXES DURINGTHE BOILING OF A HIGH-BOILING HEAT TRANSFERAGENT IN PIPES,
AD-629 801 FLD. 20/13

•STEWART, A. C.
• • •
FIELD STRENGTH MEASUREMENTS, PHASE II.
AD-629 980 FLD. 14/2

•STEWART, K. R.
• • •
AN ACOUSTIC RAY SHIP POSITIONING ANDTRACKING SYSTEM.
AD-629 454 FLD. 17/7

•STOKLEY, PETER F.
• • •
THE PREPARATION AND REARRANGEMENT OF THETHREE ISOMERIC B2OH18(-4)IONS,
AD-629 391 FLD. 7/2

•STONE, WILLIAM, JR.
• • •
USES OF PLASTICS IN OPHTHALMOLOGY,
AD-629 902 FLD. 6/5

•STONE, W., JR.
• • •
PERMEABILITIES OF POLYMERS AND THEIR MEDICALAPPLICATIONS: CORNEAL POLYMER IMPLANTS,
AD-629 903 FLD. 6/5
• • •
STERILIZATION OF POLYMERS,
AD-629 904 FLD. 6/12
• • •
PRINCIPLES OF POLYMER IMPLANT APPLICATIONS,
AD-629 621 FLD. 6/5

•STOPFORD, JOHN M.
• • •
MECHANISMS OF COMBUSTION INSTABILITY,
AD-629 834 FLD. 21/2

•STORR, A.
• • •
HALOGEN DERIVATIVES OF CO-ORDINATEDGALLIUM HYDRIDE,
AD-629 372 FLD. 7/2

•STOUT, J. W.
• • •
ZEEMAN SPLITTING OF NARROW LINES INCRYSTALLINE MNF2, FEF2, AND COF2. EVIDENCEFOR SPIN-WAVE EXCITATIONS.
AD-629 803 FLD. 7/4

•STRAITON, A. W.
• • •
MICROWAVE PHASE FRONT MEASUREMENTS FOROVERWATER PATHS OF 12 AND 32 MILES,
AD-629 628 FLD. 20/14

•STRATTON, LOIS O.
• • •
BODY-BUFFER ZONE. EXPLORATION OF PERSONALSPACE.
AD-629 337 FLD. 5/10

•STRAUSS, H. L.
• • •
FAR-INFRARED SPECTRUM OF TETRAHYDROFURAN:SPECTROSCOPIC EVIDENCE FOR PSEUDOROTATION,
AD-629 492 FLD. 7/3

•STREITWIESER, A., JR.
• • •
ON THE BROMOPYRENES,
AD-629 329 FLD. 7/5

•STROMBERG, RAGNER
• • •
NON-NEWTONIAN FLOW OF SOLUTIONS OF HIGHMOLECULAR WEIGHT POLYMER IN EXTREMELYVISCOUS SOLVENTS.
AD-629 712 FLD. 7/4

•ST, R. V.
• • •
FAR-INFRARED SPECTRUM OF TETRAHYDROFURAN:SPECTROSCOPIC EVIDENCE FOR PSEUDOROTATION,
AD-629 492 FLD. 7/3

•SUELZLE, L. R.
• • •
CHARGE DISTRIBUTIONS OF CA40 AND CA44 FROM250 MEV ELECTRON SCATTERING,
AD-629 272 FLD. 20/8

•SULIMA, A. M.
• • •
MANUFACTURE OF BASIC COMPONENTS ANDASSEMBLIES OF AIRCRAFT ENGINES,
AD-629 820 FLD. 21/5

•SUNDBERG, O.
• • •
QUASI-FREE PROTON SCATTERING IN LIGHT NUCLEIAT 460 MEV,
AD-629 318 FLD. 20/8

•SU, CHARLES W.
• • •
A SOURCE DISTRIBUTION TECHNIQUE FOR THESOLUTION OF GENERAL ELECTROMAGNETICSCATTERING PROBLEMS. PHASE I REPORT,
AD-629 986 FLD. 17/9

•SWANSON, LEONARD
• • •
PROJECT COMPASS: A COMPUTER ASSISTEDCLASSIFICATION SYSTEM FOR NAVY ENLISTED MEN.
AD-629 428 FLD. 5/9

•SWINZOW, G. K.
• • •
PRELIMINARY INVESTIGATIONS OF PERMACRETE.
AD-629 798 FLD. 13/3

•SWITZER, S. A.
• • •
GROUP PERFORMANCE AS A FUNCTION OF SIZE,STRUCTURE, AND TASK DIFFICULTY,
AD-629 322 FLD. 5/10

•SZACHTA, FRANK DAVID
• • •
THE DESIGN OF AN IMPROVED RECEIVER FORROCKET EXPERIMENTS.
AD-629 654 FLD. 17/2

•TABATA, Y.
• • •
THE PHOTOLYSIS OF SOME ALPHA-SUBSTITUTEDCYCLOHEXANONES,
AD-629 250 FLD. 8/1

•TAKANO, M.
• • •
PARTICLE MOTIONS IN SHEARED SUSPENSIONS.XVI. ORIENTATIONS OF RODS AND DISKS INHYPERBOLIC AND OTHER FLOWS,
AD-629 243 FLD. 7/4

•TAMMARU, ENN
• • •
USING AN ANALOG COMPUTER TO ANALYZETRANSISTOR CIRCUIT PERFORMANCE,
AD-629 490 FLD. 9/1

•TARAGIN, MORTON F.
• • •
ON THE STABILITY AND DYNAMIC BEHAVIOR OFCASCADED THERMOELECTRIC DEVICES,
AD-629 828 FLD. 9/1

•TARG, RUSSELL
• • •
TECHNIQUES FOR SUPER-MODE OSCILLATION.
AD-629 845 FLD. 20/5

•TAYLOR, GORDON
• • •
INVESTIGATION OF GERMANIUM DIODES FORTHERMO-PHOTOVOLTAIC ENERGY CONVERTORS.
AD-629 313 FLD. 10/1

•TAYLOR, HERBERT B.
• • •
POSTIRRADIATION SARCOMAS OF THE UTERUS,
AD-629 259 FLD. 6/5

•TAYLOR, HUGH P.
• • •
MOLECULAR ATMOSPHERIC OXYGEN HORIZONSTUDY DATA EVALUATION STUDY REPORT,
AD-629 615 FLD. 22/2

•TEFFT, E. G.
• • •
A PRODUCT ENGINEERING MEASURE FOR THEIMPROVEMENT OF PRODUCTION TECHNIQUES TOINCREASE THE RELIABILITY AND TO IMPROVEPRODUCT CAPABILITY OF HIGH VOLTAGE MINIATURESILICON RECTIFIERS.
AD-629 858 FLD. 9/1

•TELLER, JAMES D.
• • •
DEVELOPMENT OF A NON-VERBAL LEARNINGABILITY TEST FOR NON-U.S. CITIZEN PERSONNELOVERSEAS.
AD-629 692 FLD. 5/9

•TERENTEV, A. G.
• • •
NEWS OF SCHOOLS OF HIGHER EDUCATION.MATHEMATICS. (SELECTED ARTICLES),
AD-629 851 FLD. 12/1

•TE VAULT, KENT
• • •
ELECTRIC SPARK STIMULATION OF THE SKIN.
AD-629 848 FLD. 5/10

•THEIL, GEORGE B.
• • •
MYOGLOBINURIA AND PERSISTENCE OF FETALMYOGLOBIN.
AD-629 340 FLD. 6/5

•THEIL, G. B.
• • •
GOODPASTURE'S SYNDROME. A CLINICOPATHOLOGICENTITY.
AD-629 339 FLD. 6/5

•THERRIAULT, D. G.
• • •
THE EFFECT OF ACUTE AND CHRONIC COLDEXPOSURE ON TISSUE LIPIDS IN

THE RAT,
AD-629 794 FLD. 6/19

• • •

METABOLISM OF CARNITINE IN COLDACCLIMATED RATS,
AD-629 795 FLD. 6/19

•THIBAUT, JOHN

• • •

L'APPROCHE CLINIQUE ET EXPERIMENTALE DE LAGENESE DES NORMES CONTRACTUELLES DANSDIFFERENTES CONDITIONS DE CONFLIT ET DEMENACE (CLINICAL AND EXPERIMENTAL APPROACH TO THEORIGIN OF CONTRACTUAL NORMS UNDER DIFFERENT CONDITIONSOF CONFLICT AND THREAT),
AD-629 717 FLD. 5/10

•THIESS, GEORGE H.

• • •

WIDEBAND ELECTRONICALLY TUNABLE FILTERSFOR VHF-UHF BAND.
AD-629 360 FLD. 9/1

•THOMPSON, WILLIAM E.

• • •

GAMMA RAYS FROM (N, N'GAMMA RAYS) INTERACTIONSOF 2.8 MEV NEUTRONS WITH MAGNESIUM, ALUMINUM,SILICON, TITANIUM AND IRON,
AD-629 997 FLD. 20/8

•THORPE, B. D.

• • •

DETECTION OF AN ENZOOTIC PLAGUE FOCUS BYSEROLOGICAL METHODS,
AD-629 350 FLD. 6/5

•THROOP, GERALD J.

• • •

NUMERICAL SOLUTIONS OF THE PERCUS-YEVICKEQUATION FOR THE HARD-SPHERE POTENTIAL,
AD-629 327 FLD. 20/9

• • •

RADIAL DISTRIBUTION FUNCTIONS FOR MIXTURESOF HARD SPHERES,
AD-629 328 FLD. 20/9

•TIMBERLAKE, A. B.

• • •

RADC RELIABILITY PHYSICS NOTEBOOK,
AD-629 769 FLD. 19/9

•TIPPETT, JAMES T.

• • •

OPTICAL AND ELECTRO-OPTICAL INFORMATIONPROCESSING,
AD-629 812 FLD. 9/2

•TIPPINS, HARRY H.

• • •

ABSORPTION EDGE SPECTRUM OF SCANDIUM OXIDE,
AD-629 539 FLD. 7/9

•TIPTON, C. L.

• • •

HUMAN VS FILTER AS DATA EXTRAPOLATOR INA TWO-COORDINATE, SAMPLED-DATA TRACKINGSYSTEM.
AD-629 999 FLD. 5/8

•TITTMANN, B. R.

• • •

SUPERCONDUCTIVITY IN THE ARTIFICIAL METALS:METALLIC INDIUM ANTIMONIDE, THE INDIUM-ANTIMONIDE-TIN ALLOYS, AND METALLIC INDIUMTELLURIDE,
AD-629 376 FLD. 20/12

•TITUS, JAMES B.

• • •

ANALYSIS OF FRICTION TORQUE IN SIMPLE ANDPRELOADED SPUR GEAR TRAINS.
AD-629 591 FLD. 13/9

•TOBIN, MARVIN C.

• • •

CONTINUOUS-WAVE STIMULATED RAMANEMISSION.
AD-629 301 FLD. 20/6

•TOBOLSKY, A. V.

• • •

A GENERAL TREATMENT OF EQUILIBRIUMCOPOLYMERIZATION,
AD-629 279 FLD. 7/4

•TOONG, TAU-YI

• • •

MECHANISMS OF COMBUSTION INSTABILITY,
AD-629 834 FLD. 21/2

•TRAFICANTE, DANIEL D.

• • •

CARBON-13 MAGNETIC RESONANCE SPECTRA OF1-SUBSTITUTED 1-HEXYNES,
AD-629 405 FLD. 7/3

•TRAVIS, L. JOHN

• • •

LES-4 SPIN AXIS ORIENTATION SYSTEM.
AD-629 398 FLD. 22/2

•TRAYLOR, T. C.

• • •

RESONANCE STABILIZATION OF ALPHA-FERROCENYLCARBONIUM IONS.
AD-629 364 FLD. 7/3

•TRIFONOV, N. P.

• • •

A SYSTEM FOR PROGRAMMING AUTOMATION,
AD-629 726 FLD. 9/2

•TSUKANOV, I. S.

• • •

MANUFACTURE OF BASIC COMPONENTS ANDASSEMBLIES OF AIRCRAFT ENGINES,
AD-629 820 FLD. 21/5

•TUCKER, B. L.

• • •

DECOUPLING ESTIMATES FOR UNDERGROUNDEXPLOSIONS.
AD-629 719 FLD. 19/4

•TUGARINOV, V.

• • •

CAN A MACHINE THINK.
AD-629 854 FLD. 6/4

•TURNER, HARRY A.

• • •

MEASUREMENT OF IONOSPHERIC EFFECTS ON CURTSSOUNDER/COMMUNICATIONS TERMINAL SEPARATIONS.
AD-629 293 FLD. 20/14

•TYAN, MARVIN L.

• • •

HOMOGRAFT RESPONSE AND HEMAGGLUTININPRODUCTION BY SENSITIZED THYMECTOMIZEDIRRADIATED ADULT MICE,
AD-629 989 FLD. 6/18

•TYREN, H.

• • •

QUASI-FREE PROTON SCATTERING IN LIGHT NUCLEIAT 460 MEV,
AD-629 318 FLD. 20/8

•UGINCIUS, PETER

• • •

ACOUSTIC SPREADING LOSS IN AN INHOMOGENEOUSMEDIUM,
AD-629 459 FLD. 20/1

•UKOLOV, V. L.

• • •

DETERMINATION OF THE OPTIMUM DIMENSIONSOF RADIATING FINS,
AD-629 850 FLD. 20/13

•UNDERWOOD, CHESTER E.

• • •

A COMPARISON OF TENDERNESS PARAMETERS INDEHYDRATED MEAT.
AD-629 306 FLD. 6/8

•UZDAVINES, EDMOND J.

• • •

AN ANALYSIS OF THE SELECTION OF CANDIDATESFOR SALES ENGINEERING POSITIONS.
AD-629 649 FLD. 5/9

•VAKOVLEVSKII, V. V.

• • •

THE ROLE OF KINETIC AND DIFFUSIONAL FACTORSIN THE COMBUSTION OF FUELS IN GAS-TURBINEENGINES,
AD-629 729 FLD. 21/4

•VANDERBURGH, ALEXANDER, JR.

• • •

OPTICAL AND ELECTRO-OPTICAL INFORMATIONPROCESSING,
AD-629 812 FLD. 9/2

•VAN DER MEER, C.

• • •

PARALYZING ANIMAL POISONS,
AD-629 456 FLD. 6/3

•VANDIVIER, RONALD W.

• • •

STUDY OF SOLID-STATE AND TRAVELING-WAVEMASER TECHNIQUES.
AD-629 359 FLD. 20/5

•VAN NESS, H. N.

• • •

AN ACOUSTIC RAY SHIP POSITIONING ANDTRACKING SYSTEM.
AD-629 494 FLD. 17/7

•VAN OOSTRUM, K. J.

• • •

CHARGE DISTRIBUTIONS OF CA40 AND CA44 FROM250 MEV ELECTRON SCATTERING,
AD-629 272 FLD. 20/8

•VANPRAET, G. J.

• • •

STUDY OF NUCLEAR EXCITATIONS IN B10, B11,AND N14 BY INELASTIC ELECTRON SCATTERINGAT 180 DEG,
AD-629 270 FLD. 20/8

•VAN TILBURG, R. W.

• • •

APPLICATION OF OPTICAL FABRICATIONTECHNIQUES TO THE FABRICATION AND DEVELOPMENT OF FLUID AMPLIFIERS AND FLUID CIRCUITS.
AD-629 773 FLD. 13/7

•VEKRIS, S. L.

• • •

NUCLEAR MAGNETIC RESONANCE SPECTROSCOPY OFSOME SELENIUM COMPOUNDS,
AD-629 331 FLD. 7/4

•VESTINE, E. H.

• • •

A SURVEY OF MAGNETIC STORMS,
AD-629 776 FLD. 8/14

•VON HUENE, RONALD

• • •

OFFSHORE GRAVITY AND MAGNETIC ANOMALIESIN THE SANTA BARBARA CHANNEL, CALIFORNIA.
AD-629 700 FLD. 8/4

•VRABLIK, EDWARD A.

• • •

LES-4 SPIN AXIS ORIENTATION SYSTEM.
AD-629 398 FLD. 22/2

•VVEDENSKII, G. A.

• • •

NEWS OF SCHOOLS OF HIGHER EDUCATION.MATHEMATICS. (SELECTED ARTICLES),
AD-624 851 -- FLD. 12/1

•WAGNER, RICHARD C.
• • •
PRODUCTION ENGINEERING MEASURES FOR HIGHRELIABILITY, FIXED, FILM, PRECISION RESISTORS.
AD-624 436 FLD. 9/1

•WAITS, F. N.
• • •
PROTON MAGNETOMETER TEST ON BOARD A SURVEYAIRCRAFT.
AD-624 281 FLD. 8/14

•WALKER, B. R.
• • •
HYDRA PROGRAM, A SHORT-RANGE TELEMETERINGROCKET FOR MEASUREMENT OF UNDERWATERNUCLEAR-BURST PLUME RADIATION.
AD-624 857 FLD. 18/4

•WALKER, JOHN
• • •
TISSUE LACTIC DEHYDROGENASE ISOZYMES:VARIATION IN RATS DURING PROLONGED COLDEXPOSURE,
AD-624 796 FLD. 6/19

•WALKER, LAWRENCE R.
• • •
THERMODYNAMIC PROPERTIES OF SPIN IMPURITIESIN HEISENBERG FERROMAGNETS.
AD-624 721 FLD. 20/3

•WALLER, JAMES R.
• • •
BIOTIN TRANSPORT AND ACCUMULATION BY CELLSOF LACTOBACILLUS PLANTARUM. I. GENERALPROPERTIES OF THE SYSTEM,
AD-624 491 FLD. 6/13

•WALL, P. D.
• • •
IMPULSES ORIGINATING IN THE REGION OFDENDRITES,
AD-624 355 FLD. 6/16

•WALTERS, G. E.
• • •
PRODUCTION ENGINEERING MEASURE FORMECHANIZATION OF HIGH RELIABILITY CAPACITORS.
AD-624 515 FLD. 9/1

•WANG, YUNG-LI
• • •
A WICK'S THEOREM FOR SPIN OPERATORS, WITHAN APPLICATION TO SPIN WAVES IN ANTIFERROMAGNETS.
AD-624 720 FLD. 20/3

•WARD, R. A.
• • •
SOME EFFECTS OF THE MOSQUITO HOST ONMALARIA PARASITES,
AD-624 248 FLD. 6/3

•WARE, J. C.
• • •
RESONANCE STABILIZATION OF ALPHA-FERROCENYLCARBONIUM IONS.
AD-624 364 FLD. 7/3

•WARE, WILLIS H.
• • •
SOVIET CYBERNETICS TECHNOLOGY: V. SOVIETPROCESS CONTROL COMPUTERS,
AD-624 290 FLD. 9/2

•WARREN, WALTER B.
• • •
A FREQUENCY MEASURING SPECTRUM ANALYZER.
AD-624 698 FLD. 20/6

•WASILIK, R. M.
• • •
A SIMPLE LEVEL INDICATOR FOR LIQUID HELIUMAT ALL TEMPERATURES.
AD-624 471 FLD. 14/2

•WATTEN, RAYMOND H.
• • •
MYOGLOBINURIA AND PERSISTENCE OF FETALMYOGLOBIN.
AD-624 340 FLD. 6/5

•WATTEN, R. H.
• • •
GOODPASTURE'S SYNDROME. A CLINICOPATHOLOGICENTITY.
AD-624 339 FLD. 6/5

•WAUGH, J. S.
• • •
CORRELATION FUNCTIONS IN NUCLEAR RELAXATIONI. ANALYSIS OF RANDOM MOTIONS FROM FIELDDEPENDENCE OF RELAXATION TIMES,
AD-624 352 FLD. 7/4
• • •
STRONG COUPLING IN NUCLEAR RESONANCE SPECTRA. V. PERTURBATION THEORY FOR THE EXTREMECOUPLING CASE,
AD-624 354 FLD. 7/4

•WEAVER, RALPH WALDO, JR.
• • •
A PRELIMINARY INVESTIGATION OF A METHOD FORDEFINING MECHANICAL PROPERTIES OF CELLS ANDTISSUE.
AD-624 647 FLD. 6/16

•WEBSTER, FERRIS
• • •
A COMPILATION OF MOORED CURRENT METEROBSERVATIONS, VOLUME I.
AD-624 815 FLD. 8/3

•WEDLOCK, BRUCE D.
• • •
INVESTIGATION OF GERMANIUM DIODES FORTHERMO-PHOTOVOLTAIC ENERGY CONVERTORS.
AD-624 313 FLD. 10/1

•WEGNER, PATRICK A.
• • •
B-PHENYL-1,2- DICARBA CLOVODODECARBORANE(12)FROM B9C2H11(1-2) THROUGH AN INSERTION REACTION,
AD-624 387 FLD. 7/2
• • •
CARBAMETALLIC BORON HYDRIDE DERIVATIVES.I. APPARENT ANALOGS OF FERROCENE ANDFERRICINIUM ION,
AD-624 390 FLD. 7/2

•WEISS, P. F.
• • •
ELECTRONICALLY STEERABLE ARRAY: CHANGE A,
AD-624 791 FLD. 9/5

•WEISS, V.
• • •
DEFORMATION CHARACTERISTICS OF METALS ANDALLOYS.
AD-624 267 FLD. 11/6

•WEIS, E. B., JR.
• • •
SYSTRAN (SYSTEMS ANALYSIS TRANSLATOR): ADIGITAL COMPUTER PROGRAM.
AD-624 468 FLD. 9/2

•WEI, E. L.
• • •
STRONG COUPLING IN NUCLEAR RESONANCE SPECTRA. V. PERTURBATION THEORY FOR THE EXTREMECOUPLING CASE,
AD-624 354 FLD. 7/4

•WENDLANDT, WESLEY W.
• • •
THE THERMAL DISSOCIATION OF SOME BIS ANDTETRAKIS (PYRIDINE) METAL COMPLEXES,
AD-624 332 FLD. 7/2

•WEYBREW, BENJAMIN B.
• • •
SELECTION OF MEN FOR HAZARDOUS DUTY FROMINDICES OF INDIVIDUAL DIFFERENCES INAUTONOMIC NERVOUS SYSTEM REACTIVITY.
AD-624 783 FLD. 6/19

•WHEELER, WARREN R.
• • •
RESEARCH ON NEW TYPES OF ANTENNA SYSTEMSFOR THE FREQUENCY RANGE 30-1000 MC.
AD-624 478 FLD. 9/5

•WHERRY, ROBERT J., JR.
• • •
A STUDY OF SOME DETERMINERS OF PSYCHOLOGICALSTRESS.
AD-624 490 FLD. 5/10

•WHINSTON, A.
• • •
AN ALTERNATIVE INTERPRETATION OF THEPRIMAL-DUAL METHOD AND SOME RELATEDPARAMETRIC METHODS,
AD-624 499 FLD. 12/2
• • •
ON TWO COMMODITY NETWORK FLOWS.
AD-624 500 FLD. 12/2
• • •
FEASIBILITY OF TWO COMMODITY NETWORK FLOWS,
AD-624 501 FLD. 12/2

•WHITE, PAUL C., JR.
• • •
THE EFFECTS OF TWO TYPES OF BODY ARMOR ONBODY TEMPERATURE.
AD-624 738 FLD. 19/4
• • •
A METHOD FOR THE DETERMINATION OF STRONGACID VAPORS IN THE PPM RANGE.
AD-624 296 FLD. 7/2

•WILLIS, KENNETH E.
• • •
SENSITIVITY ANALYSIS OF CIVIL DEFENSESYSTEMS AND COMPONENTS. A GENERALIZEDSENSITIVITY ANALYSIS OF CD SYSTEMS.
AD-624 703 FLD. 15/3

•WILLIS, K. E.
• • •
SENSITIVITY ANALYSIS OF CIVIL DEFENSESYSTEMS AND COMPONENTS. INTRODUCTION ANDSUMMARY.
AD-624 704 FLD. 15/3

•WILSON, CHARLES B.
• • •
A FREQUENCY MEASURING SPECTRUM ANALYZER.
AD-624 698 FLD. 20/6

•WIMPEE, ROY M.
• • •
THE USE OF STATISTICAL CONTROL CHARTTECHNIQUES IN A SICK LEAVE CONTROL PROGRAM.
AD-624 747 FLD. 5/9
• • •
A DISTRIBUTIONAL STUDY OF THE REAL FREQUENCYBEHAVIOR OF PASSIVE SYSTEMS.
AD-624 771 FLD. 9/5

•WOLFE, THOMAS W.
• • •
SOVIET MILITARY THEORY: AN ADDITIONALSOURCE OF INSIGHT INTO ITS DEVELOPMENT,
AD-624 797 FLD. 15/7

•WOLF, IRVING W.
• • •
ELECTRODEPOSITED MAGNETIC FILM DEVELOPMENT.
AD-629 930 FLD. 9/1

•WOOD, CHARLES D.
• • •
A COMPARISON OF EFFECTIVENESS OF SOMEANTIMOTION SICKNESS DRUGS USING RECOMMENDEDAND LARGER THAN RECOMMENDED DOSES ASTESTED IN THE SLOB ROTATION ROOM,
AD-629 926 FLD. 6/15

•WRIGHT, H. R.
• • •
EXPERIMENTAL STUDY OF HIGH SPEEDHYDROFOILS, VOLUME II, PART IV,
AD-629 913 FLD. 13/10

•YAMADA, RYO
• • •
DYNAMIC BIREFRINGENCE AND MECHANICALLOSS SPECTRA OF CRYSTALLINE POLYMERS,
AD-629 982 FLD. 11/9

•YAMAMOTO, GEORGE NOBORU
• • •
THE EFFECTS OF CYCLIC STRESSING ONPREFERRED ORIENTATION OF POLYCRYSTALLINEALUMINUM.
AD-629 651 FLD. 11/6

•YARINA, L.
• • •
CABBAGE THERAPY. MEDICINAL PROPERTIES OFTHE PLANTS ALOE AND CALENDULA,
AD-629 589 FLD. 6/3

•YASUDA, H.
• • •
HYDROGELS FROM 2-HYDROXYETHYL METHACRYLATE AND PROPYLENE GLYCOL MONOACRYLATE,
AD-629 980 FLD. 11/9
• • •
GRAFT COPOLYMERIZATION OF VINYLPYRROLIDONEONTO POLYDIMETHYLSILOXANE,
AD-629 982 FLD. 11/9
• • •
USES OF PLASTICS IN OPHTHALMOLOGY,
AD-629 902 FLD. 6/5
• • •
PERMEABILITIES OF POLYMERS AND THEIR MEDICALAPPLICATIONS: CORNEAL POLYMER IMPLANTS,
AD-629 903 FLD. 6/5
• • •
STERILIZATION OF POLYMERS,
AD-629 904 FLD. 6/12
• • •
PRINCIPLES OF POLYMER IMPLANT APPLICATIONS,
AD-629 621 FLD. 6/5

•YATES, BRIAN L.
• • •
PYROLYSIS STUDIES. XV. THERMAL RETROGRADEALDOL CONDENSATION OF BETA-HYDROXY KETONES,
AD-629 374 FLD. 7/4

•YEARIAN, M. R.
• • •
CHARGE DISTRIBUTIONS OF CA40 AND CA44 FROM290 MEV ELECTRON SCATTERING,
AD-629 272 FLD. 20/8

•YOELI, M.
• • •
SUBDIRECT DECONPOSITIONS OF TRANSITIONGRAPHS,
AD-629 577 FLD. 12/2
• • •
SUBDIRECTLY IRREDUCIBLE UNARY ALGEBRAS,
AD-629 978 FLD. 12/2

•YOUNG, DONALD C.
• • •
CARBAMETALLIC BORON HYDRIDE DERIVATIVES.I. APPARENT ANALOGS OF FERROCENE ANDFERRICINIUM ION,
AD-629 390 FLD. 7/2

•YOUNG, JIMMIE DON
• • •
A FREDHOLM INTEGRAL EQUATION SOLUTION FORVARIABLE CONDUCTIVITY MAGNETOHYDRODYNAMICCHANNEL FLOW.
AD-629 667 FLD. 20/9

•YOUNG, R. A.
• • •
X-RAY DIFFRACTION STUDIES OF THERMAL MOTIONSIN CRYSTALS.
AD-629 823 FLD. 20/2

•ZANCHETTI, A.
• • •
PRESSOCEPTIVE AND CHEMOCEPTIVE AORTICREFLEXES IN DECORTICATE AND IN DECEREBRATECATS,
AD-629 832 FLD. 6/16

•ZANDER, R.
• • •
MOISTURE CONTAMINATION AT ALTITUDE BYBALLOON AND ASSOCIATED EQUIPMENT,
AD-629 711 FLD. 4/1

•ZASLAVSKII, YU. S.
• • •
RADIATION STABILITY OF LUBRICANTS,
AD-629 790 FLD. 11/8

•ZHOGOLEV, E. A.
• • •
POLIZ-63 INTERPRETER,
AD-629 727 FLD. 9/2

•ZIERLER, N.
• • •
ON MAPPINGS FOR MODULAR ARITHMETIC, II.
AD-629 489 FLD. 9/2

•ZIMMERMAN, LORENZ E.
• • •
BARIUM SULPHATE AND ZINC SULFIDE DEPOSITSRESULTING FROM GOLF-BALL INJURY TO THECONJUNCTIVA AND EYELID,
AD-629 809 FLD. 6/5

•ZISMAN, W. A.
• • •
SURFACE CHEMISTRY OF FLUOROCHEMICALS.
AD-629 610 FLD. 7/4

•ZIVI, S. M.
• • •
ELECTROFLUID HYPERSONIC RESEARCH.
AD-629 563 FLD. 20/9
• • •
ELECTROFLUID HYPERSONIC RESEARCH.
AD-629 564 FLD. 20/9

CORPORATE AUTHOR - MONITORING AGENCY INDEX

The fields/groups indicated here apply only to the Technical Abstract Bulletin Section (on white paper).

•ADVANCED RESEARCH PROJECTS AGENCY WASHINGTON D C
• • •
ARPA-VUF-1020
WEATHER AND SURFACE RADIATION PREDICTIONACTIVITIES.
AD-629 996 FLD. 18/3
• • •
ARPA-VUF-1026
ANALYSIS OF GROUND MOTION AND CONTAINMENT.
AD-629 922 FLD. 18/3
• • •
ARPA-VUF-3019
LABORATORY DESIGN, ANALYSIS, AND FIELDCONTROL OF GROUTING MIXTURES EMPLOYED ATA NUCLEAR TEST IN SALT.
AD-629 929 FLD. 18/3

•ADVANCED TECHNOLOGY CORP TIMONIUM MD
• • •
DIODE, MILLIMETER WAVE TYPE MIXER (3.2 MM).
AD-629 912 FLD. 9/5

•AEROCHEM RESEARCH LABS INC PRINCETON N J
• • •
AEROCHEM-TP-118
RADAR INTERFERENCE EFFECTS IN THE LEMDESCENT ENGINE EXHAUST PLUME. PART I.CHEMI-IONIZATION IN THE LEM PROPELLANTSYSTEM. PART II. PREDICTION OF REFRACTIONAND ATTENUATION OF THE LEM RADAR BEAMS.
AD-629 981 FLD. 22/1
• • •
TP-117
KINETICS OF THE ATTACK OF MOLYBDENUM BYDISSOCIATED CHLORINE,
AD-629 943 FLD. 7/4

•AEROJET-GENERAL CORP DAYTON OHIO
• • •
AGC-3029
TOXIC HAZARDS RESEARCH UNIT DESIGN ANDCONSTRUCTION PHASE. (AMRL-TR-65-125)
AD-629 973 FLD. 14/2

•AEROJET-GENERAL NUCLEONICS SAN RAMON CALIF
• • •
AN-1255-VOL-2
RESEARCH IN HIGH TEMPERATURE PLASMAS FORSPACE APPLICATIONS. VOLUME II. ENGINEERING. (APL-TDR-64-124-VOL-2)
AD-629 986 FLD. 20/9

•AEROMEDICAL RESEARCH LAB (6571ST) HOLLOMAN AFB N MEX
• • •
ARL-TR-69-22
MAXIMUM VOLUNTARY VENTILATION AFTER + GSUB X IMPACT IN HUMANS.
AD-629 626 FLD. 6/19

•AERONAUTICAL CHART AND INFORMATION CENTER ST LOUIS MO
• • •
ACIC-RP-15
APPLICATIONS OF SPHERICAL HARMONICS TOGEODETIC PROBLEMS,
AD-629 979 FLD. 8/4
• • •
ASD-TDR-63-316-VOL-9
INTEGRATED SILICON DEVICE TECHNOLOGY.VOLUME IX. EPITAXY.
AD-629 920 FLD. 9/1
• • •
PUB. U-3127
ABSORPTION BY CO2 BETWEEN 6600 AND7129/CM (1.4 MICRON REGION).
AD-629 968 FLD. 3/3
• • •
TDR-669(9230-02)-4
ABSORPTION EDGE SPECTRUM OF SCANDIUM OXIDE, (SSD-TR-65-196)
AD-629 934 FLD. 7/4

•AEROSPACE INFORMATION DIV LIBRARY OF CONGRESS WASHINGTON D C
• • •
AID-62-132
FURTHER ANALYSIS OF DATA ON T-5 FUEL, (TT-65-64787)
AD-629 791 FLD. 21/4
• • •
AID-62-177
RADIATION STABILITY OF LUBRICANTS, (TT-65-64786)
AD-629 790 FLD. 11/8
• • •
AID-T-63-97
STUDY OF THE PROPERTIES AND OF THE FEASIBILITYOF USING ORGANOBOROSILICON POLYMERS AS CONSTITUENTS OF HEAT-RESISTANT ADHESIVES, (TT-65-64788)
AD-629 792 FLD. 11/1

•AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB OHIO
• • •
AMRL-TR-65-63
OBSERVATIONS ON RATS EXPOSED TO A SPACECABIN ATMOSPHERE FOR TWO WEEKS.
AD-629 342 FLD. 6/11
• • •
ARL-TR-65-21
THE INFLUENCE OF DIET ON THE NORMAL FECALFLORA OF THE CHIMPANZEE.
AD-629 612 FLD. 6/3

•AEROSPACE TECHNOLOGY DIV LIBRARY OF CONGRESS WASHINGTON D C
• • •
ATD-65-84
OPTICAL DETECTION: COMPILATION OF ABSTRACTS. (TT-65-64725)
AD-629 939 FLD. 20/6
• • •
ATD-65-101
SOVIET SPACE EXPLORATION AS VIEWED BY EASTGERMAN SPECIALISTS, (TT-65-64766)
AD-629 979 FLD. 22/1
• • •
ATD-65-108
THE LOWEST ELECTRON DENSITY NECESSARYFOR WAVE REFLECTION FROM THE IONOSPHERICD-LAYER, (TT-65-64726)
AD-629 962 FLD. 4/1
• • •
ATD-P-65-65
HIGH EXPLOSIVES, FUZES, AND FUZING MECHANISMS.PART A. CHEMISTRY OF HIGH EXPLOSIVES. (TT-65-64778)
AD-629 687 FLD. 19/1
• • •
ATD-P-65-71
COMMUNICATIONS NETWORKS. PART I. REVIEW OFSOVIET LITERATURE, (TT-65-64789)
AD-629 749 FLD. 17/2
• • •
ATD-P-65-72
COMMUNICATIONS NETWORKS. PART II.DESIGNATIONS AND ABBREVIATIONS, (TT-65-64798)
AD-629 821 FLD. 17/2
• • •
ATD-P-65-96
MIXING OF CONCENTRIC HIGH-VELOCITYAIRSTREAMS, (TT-65-64799)
AD-629 809 FLD. 20/4
• • •
APL-TDR-64-124-VOL-2
RESEARCH IN HIGH TEMPERATURE PLASMAS FORSPACE APPLICATIONS. VOLUME II. ENGINEERING.
AD-629 986 FLD. 20/9

•AIR FORCE CAMBRIDGE RESEARCH LABS L G HANSCOM FIELD.MASS
• • •
AFCRL-65-252
TEMPERATURE DEPENDENCE OF THE INFRAREDSPECTRA OF SELECTED DIELECTRICS.
AD-629 896 FLD. 11/7
• • •
AFCRL-65-537
INVESTIGATIONS ON THE GUIDING, SCATTERING,AND RADIATION OF ELECTROMAGNETIC WAVES.
AD-629 843 FLD. 20/14
• • •
AFCRL-65-585
THE DYNAMICS OF STRATOSPHERIC CIRCULATIONS.
AD-629 591 FLD. 4/1
• • •
AFCRL-65-680
STUDIES IN AUTOMATIC LANGUAGE PROCESSING.
AD-629 305 FLD. 5/7
• • •
AFCRL-65-681
SPEECH ANALYSIS,
AD-629 555 FLD. 5/7
• • •
AFCRL-65-722
ZERO-CUTOFF MODE IN DIELECTRIC-LOADEDCOAXIAL WAVEGUIDE,
AD-629 617 FLD. 9/1
• • •
AFCRL-65-723
COMPARISON OF ATOMIC LS-COUPLING LINE ANDMULTIPLET STRENGTHS WITH OBSERVATIONS OF FE I.
AD-629 279 FLD. 3/2
• • •
AFCRL-65-758
SUBDIRECT DECOMPOSITIONS OF TRANSITIONGRAPHS,
AD-629 577 FLD. 12/2
• • •
AFCRL-65-759
SUBDIRECTLY IRREDUCIBLE UNARY ALGEBRAS,
AD-629 578 FLD. 12/2
• • •
AFCRL-65-766
THE DETERMINATION OF CRUSTAL THICKNESSFROM THE SPECTRUM OF P WAVES.
AD-629 849 FLD. 8/7
• • •
AFCRL-65-778
THE MEASUREMENT OF PHASE AND AMPLITUDERADIO WAVE INTERACTION AT UNIVERSITY PARK,PENNSYLVANIA, FOR APRIL-MAY-JUNE, 1965.
AD-629 393 FLD. 4/1
• • •
AFCRL-65-779
DETERMINATION OF IONOSPHERIC LOSS COEFFICIENTS FROM OBSERVATIONS ON SATELLITE X-RAYFLUXES AND SUDDEN IONOSPHERIC DISTURBANCES.
AD-629 392 FLD. 4/1
• • •
AFCRL-65-780
MORPHOLOGY OF HIGH LATITUDE GEOMAGNETICDISTURBANCE AND CORRELATIONS WITH SATELLITEMAGNETIC FIELD MEASUREMENTS.
AD-629 319 FLD. 8/14
• • •
AFCRL-65-807
METHOD FOR CALCULATING MATRIX ELEMENTSBETWEEN CONFIGURATIONS WITH SEVERAL OPEN ISHELLS.
AD-629 276 FLD. 7/4
• • •
AFCRL-65-820
MOLECULAR ATMOSPHERIC OXYGEN HORIZONSTUDY DATA EVALUATION STUDY REPORT,

AD-629 615 FLD. 22/2

•AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OHIO SCHOOL OF ENGINEERING

• • •

GE/EE/65-14
ANALYSIS OF THE RESPONSE OF A NONLINEARDIFFERENTIAL EQUATION TO WHITE RANDOMEXCITATION.
AD-629 842 FLD. 12/1

• • •

GE/EE/65-18
PROPOSED COMPUTATIONS IN THE CEREBRALCORTEX BASED ON FOURIER TRANSFORM ANDSPATIAL FILTERING TECHNIQUES.
AD-629 977 FLD. 6/16

• • •

ML-TR-65-82
NON-NEWTONIAN FLOW OF SOLUTIONS OF HIGHMOLECULAR WEIGHT POLYMER IN EXTREMELYVISCOUS SOLVENTS.
AD-629 712 FLD. 7/9

•AIR FORCE OFFICE OF SCIENTIFIC RESEARCH WASHINGTON D C

• • •

AFOSR-65-1042
CATEGORICAL ALGEBRA,
AD-629 371 FLD. 12/1

• • •

AFOSR-65-1426
THE INTERIOR ELASTIC STRESS FIELD IN A CONTINUOUS, CLOSE-PACKED FILAMENTARYCOMPOSITE MATERIAL UNDER UNIAXIAL TENSION,
AD-629 572 FLD. 11/9

• • •

AFOSR-65-1493
JOINT SERVICES ELECTRONICS PROGRAM.
AD-629 297 FLD. 9/1

• • •

AFOSR-65-1560
A STUDY OF THE KINETICS AND MECHANISM OFELECTROLYTIC FILM FORMATION REACTIONS.
AD-629 269 FLD. 7/9

• • •

AFOSR-65-1633
A STUDY OF DOUBLE LAYER REPULSION AND VANDER WAALS ATTRACTION IN SOAP FILMS,
AD-629 280 FLD. 7/9

• • •

AFOSR-65-1634
A GENERAL TREATMENT OF EQUILIBRIUMCOPOLYMERIZATION,
AD-629 279 FLD. 7/9

• • •

AFOSR-65-1641
THERMODYNAMIC PROPERTIES OF SOLUTIONS OFHELICAL POLYPEPTIDES,
AD-629 274 FLD. 7/9

• • •

AFOSR-65-1642
SECOND AND FOURTH MOMENTS OF CHAIN MOLECULES,
AD-629 273 FLD. 7/9

• • •

AFOSR-65-1643
CHEMISORPTION ON SINGLE-CRYSTAL PLANES:NITROGEN ON TUNGSTEN,
AD-629 287 FLD. 7/9

• • •

AFOSR-65-1644
FAR-INFRARED SPECTRUM OF TETRAHYDROFURAN:SPECTROSCOPIC EVIDENCE FOR PSEUDOROTATION,
AD-629 492 FLD. 7/3

• • •

AFOSR-65-1645
HALOGEN DERIVATIVES OF CO-ORDINATEDGALLIUM HYDRIDE,
AD-629 372 FLD. 7/2

• • •

AFOSR-65-1646
BRIDGED POLYCYCLIC COMPOUNDS. XXVIII. THEPROTON MAGNETIC RESONANCE SPECTRA OF SOMEDIBENZOBICYCLO/3.2.1/OCTADIENES,
AD-629 373 FLD. 7/3

• • •

AFOSR-65-1647
PYROLYSIS STUDIES. XV. THERMAL RETROGRADEALDOL CONDENSATION OF BETA-HYDROXY KETONES,
AD-629 374 FLD. 7/9

• • •

AFOSR-65-1648
STUDIES ON THE HYDROLYSIS OF METAL IONS.PART 50. THE HYDROLYSIS OF THE YTTRIUM(III) ION,Y(3+),
AD-629 324 FLD. 7/2

• • •

AFOSR-65-1649
TECHNIQUES FOR CALORIMETRIC TITRATIONS INTHE SEMI-MICRO RANGE. PART I. APPARATUS. ASENSITIVE, AUTOMATICALLY RECORDING QUASIISOTHERMAL CALORIMETER,
AD-629 325 FLD. 14/2

• • •

AFOSR-65-1650
THE THERMAL DISSOCIATION OF SOME BIS ANDTETRAKIS (PYRIDINE) METAL COMPLEXES,
AD-629 332 FLD. 7/2

• • •

AFOSR-65-1651
MOSSBAUER STUDIES OF CHEMICAL BONDING,
AD-629 369 FLD. 8/1

• • •

AFOSR-65-1652
REVIEW OF FUNDAMENTALS OF POLAROGRAPHYIN INERT ORGANIC SOLVENTS,
AD-629 330 FLD. 7/9

• • •

AFOSR-65-1653
REACTIVE INTERMEDIATES IN THE BICYCLO/3.1.0/HEXYL AND BICYCLO/3.1.0/ HEXYLIDENE SYSTEMS.I. THE ACID-CATALYZED ADDITION OF METHANOLAND ACETIC ACID TO BICYCLO/3.1.0/HEXENE-2,
AD-629 369 FLD. 7/3

• • •

AFOSR-65-1656
THE PREPARATION AND INFRARED EXAMINATIONOF THE 2-,3-, AND 4-CYANOPYRIDINE COMPLEXESOF COPPER(I), SILVER(I), AND GOLD(I) PERCHLORATES,
AD-629 326 FLD. 7/2

• • •

AFOSR-65-1658
RADIAL DISTRIBUTION FUNCTIONS FOR MIXTURESOF HARD SPHERES,
AD-629 328 FLD. 20/9

• • •

AFOSR-65-1659
NUMERICAL SOLUTIONS OF THE PERCUS-YEVICKEQUATION FOR THE HARD-SPHERE POTENTIAL,
AD-629 327 FLD. 20/9

• • •

AFOSR-65-1662
PERTURBATION THEORY EXPANSIONS THROUGH21ST ORDER OF THE NON-RELATIVISTIC ENERGIESOF THE TWO-ELECTRON SYSTEMS(2P)2P AND (1S)21S,
AD-629 378 FLD. 7/9

• • •

AFOSR-65-1663
SUPERCONDUCTIVITY IN THE ARTIFICIAL METALS:METALLIC INDIUM ANTIMONIDE, THE INDIUM-ANTIMONIDE-TIN ALLOYS, AND METALLIC INDIUMTELLURIDE,
AD-629 376 FLD. 20/12

• • •

AFOSR-65-1664
ARTIFICIAL METALS: INSB, THE SN ALLOYS WITHINSB, AND METALLIC INTE,
AD-629 377 FLD. 11/6

• • •

AFOSR-65-1665
INTENSE 584-A LIGHT FROM A SIMPLE CONTINUOUSHELIUM PLASMA,
AD-629 375 FLD. 20/9

• • •

AFOSR-65-1666
POSITIVE-ION CHEMISTRY: HIGH YIELDS OFHEAVY HYDROCARBONS FROM SOLID METHANE BYIONIZING RADIATION,
AD-629 368 FLD. 8/1

• • •

AFOSR-65-1667
PERFATORY CHAPTER: THIRTY YEARS OF ATOMICCHEMISTRY,
AD-629 365 FLD. 8/1

• • •

AFOSR-65-1668
NATURE OF THE CHEMICAL REACTIVITY OFRADIOBROMINE ATOMS PRODUCED BY ISOMERICTRANSITION,
AD-629 366 FLD. 8/1

• • •

AFOSR-65-1669
RESONANCE STABILIZATION OF ALPHA-FERROCENYLCARBONIUM IONS.
AD-629 364 FLD. 7/3

• • •

AFOSR-65-1670
NUCLEAR MAGNETIC RESONANCE SPECTROSCOPY OFSOME SELENIUM COMPOUNDS,
AD-629 331 FLD. 7/9

• • •

AFOSR-65-1672
ON THE BROMOPYRENES,
AD-629 329 FLD. 7/3

• • •

AFOSR-65-1674
BESTIMMUNG DES KLEINSTEN LONENABSTANDES INIONISCHEN SCHMELZEN MITTELS KERNRESONANZ(DETERMINATION OF THE CLOSEST APPROACH OF IONS IN IONICMELTS BY MEANS OF NUCLEAR RESONANCE),
AD-629 333 FLD. 7/9

• • •

AFOSR-65-1678
QUASI-FREE PROTON SCATTERING IN LIGHT NUCLEIAT 460 MEV,
AD-629 318 FLD. 20/8

• • •

AFOSR-65-1712
ON CLASSIFICATION AND SUPERPOSITION PRINCIPLES FOR NONLINEAR OPERATORS.
AD-629 268 FLD. 12/1

• • •

AFOSR-65-1723
A SIMPLE APPROACH TO THE ZERO-CROSSINGPROBLEM.
AD-629 269 FLD. 12/1

• • •

AFOSR-65-1724
EXPANSION OF A NON-PERIODIC PROCESS X(T) INTOA FOURIER SERIES WITH UNCORRELATED COEFFICIENTS,
AD-629 266 FLD. 12/1

• • •

AFOSR-65-1725
ERGODICITY OF THE DISTRIBUTION FUNCTION OFA STATIONERY PROCESS,
AD-629 307 FLD. 12/1

• • •

AFOSR-65-1727
RADIATION COUPLED WEDGE FLOW USING METHODOF INTEGRAL RELATIONS,
AD-629 594 FLD. 20/4

• • •

AFOSR-65-1768
ELECTROHYDRODYNAMIC FLOW OVER A WAVYWALL.
AD-629 906 FLD. 20/9

• • •

AFOSR-65-1794
AN EXPERIMENTAL STUDY OF THE TURBULENTMIXING OF A SUBSONIC AND A SUPERSONIC JET INA CLOSED DUCT,
AD-629 591 FLD. 20/4

• • •

AFOSR-65-2206

MECHANISMS OF COMBUSTION INSTABILITY,
AD-629 834 FLD. 21/2

• • •

AFOSR-65-2242
PRESSOCEPTIVE AND CHEMOCEPTIVE AORTICREFLEXES IN DECORTICATE AND IN DECEREBRATECATS,
AD-629 832 FLD. 6/16

• • •

AFOSR-65-2254
SEISMIC RESULTS FOR GNOME AS OBSERVED BYTHE CALTECH NETWORK,
AD-629 947 FLD. 8/11

• • •

AFOSR-65-2261
SHOCK INITIATION OF LOW-DENSITY PRESSINGS OFAMMONIUM PERCHLORATE,
AD-629 937 FLD. 19/1

• • •

AFOSR-65-2264
ON THE NATURE OF UREY-BRADLEY FORCECONSTANTS APPLICATION TO FOUR FIRST ROW IONS,
AD-629 833 FLD. 7/4

• • •

AFOSR-65-2283
AUTOMATIC ADJUSTMENT IN A CONTINUOUSENVIRONMENT,
AD-629 948 FLD. 9/2

• • •

AFOSR-65-2291
RESEARCH ON THE DEFLAGRATION OF HIGH-ENERGYSOLID OXIDIZERS.
AD-629 933 FLD. 21/9.2

• • •

AFOSR-65-2304
SELF MODULATING DERIVATIVE OPTICALSPECTROSCOPY. PART 2: EXPERIMENTAL.
AD-629 765 FLD. 20/6

• • •

AFOSR-65-2306
A DISTRIBUTIONAL STUDY OF THE REAL FREQUENCYBEHAVIOR OF PASSIVE SYSTEMS.
AD-629 771 FLD. 9/5

• • •

AFOSR-2531
HIGH-MOBILITY LOW-MELTING-POINT GROUP III-VCOMPOUND SEMICONDUCTORS.
AD-629 962 FLD. 20/12

• • •

WL-TR-65-117
MEASUREMENT OF THE GRUENEISEN PARAMETERAND THE INTERNAL ENERGY DEPENDENCE OF THESOLID EQUATION OF STATE FOR ALUMINUM ANDTEFLON.
AD-629 920 FLD. 20/13

•AIR TECHNICAL SERVICE COMMAND WRIGHT-PATTERSON AFB OHIO AERO MEDICAL LAB

• • •

ENG-99-696-7D
EFFECT OF RESPIRATORY DEAD SPACE OFOXYGEN EQUIPMENT UPON OXYGEN ECONOMY.
AD-629 634 FLD. 6/17

• • •

EXP-M-99-696-9
HUMAN CENTRIFUGE.
AD-629 636 FLD. 14/2

• • •

TSEAL-696-42H
OXYGEN REQUIREMENTS WITH CONSTANT FLOWEQUIPMENT.
AD-629 633 FLD. 6/17

• • •

TSEAL-696-79B
THE CARDIO-RESPIRATORY EVENTS IN FATALANOXIA.
AD-629 639 FLD. 6/19

•AIRBORNE INSTRUMENTS LAB DEER PARK N Y

• • •

STUDY OF SOLID-STATE AND TRAVELING-WAVEMASER TECHNIQUES. (RADC-TR-65-366)
AD-629 399 FLD. 20/5

•AMERICAN OPTICAL CO SOUTHBRIDGE MASS RESEARCH DIV

• • •

EXCITED STATE SATURABLE ABSORBER FOR1.06 MICRON WAVELENGTH. (RADC-TR-65-369)
AD-629 361 FLD. 20/6

•AMPEX CORP REDWOOD CITY CALIF

• • •

RR-65-11
STIFFNESS EFFECTS ON THE INFINITELY WIDE FOILBEARING.
AD-629 827 FLD. 13/9

•AMSTERDAM UNIV (NETHERLANDS)

• • •

E-1044
PARALYZING ANIMAL POISONS.
AD-629 456 FLD. 6/3

•APPLIED TECHNOLOGY ASSOCIATES INC RAMSEY N J

• • •

ATA-106
THE EFFECT OF STRUCTURAL DAMPING ON THEACOUSTICAL FIELD SURROUNDING A SUBMERGEDVIBRATING SANDWICH SHELL,
AD-629 442 FLD. 20/11

•ARIZONA UNIV TUCSON

• • •

DEVELOPMENT AND APPLICATION OF A METHODTO DETERMINE AIRCRAFT FEASIBILITY FORISOLATED AREA SUPPORT.
AD-629 689 FLD. 1/3

•ARKANSAS UNIV FAYETTEVILLE

• • •

A MICROWAVE RADIO RELAY SYSTEM.
AD-629 669 FLD. 17/2

•ARMED FORCES INST OF PATHOLOGY WASHINGTON D C

• • •

CLEAR-CELL SARCOMA OF TENDONS ANDAPONEUROSES. AN ANALYSIS OF 21 CASES,
AD-629 258 FLD. 6/5

• • •

POSTIRRADIATION SARCOMAS OF THE UTERUS,
AD-629 259 FLD. 6/5

• • •

TERATOMA OF THE ORBIT: A REPORT OF TWOCASES,
AD-629 408 FLD. 6/5

• • •

BARIUM SULPHATE AND ZINC SULFIDE DEPOSITSRESULTING FROM GOLF-BALL INJURY TO THECONJUNCTIVA AND EYELID,
AD-629 805 FLD. 6/5

• • •

NEW EVIDENCE FOR EXCESSIVE ACCUMULATION OFZ-BAND MATERIAL IN NEMALINE MYOPATHY,
AD-629 806 FLD. 6/5

•ARMED FORCES INST OF PATHOLOGY WASHINGTON D C GEOGRAPHIC PATHOLOGY DIV

• • •

ATPICAL MYCOBACTERIA AND HUMAN DISEASE-AREVIEW,
AD-629 804 FLD. 6/13

•ARMY ELECTRONICS COMMAND FORT MONMOUTH N J

• • •

SEACORE, SOUTHEAST ASIA COMMUNICATIONSRESEARCH.
AD-629 710 FLD. 17/2.1

• • •

ECOM-2624
A GEIGER-MULLER SURVEY METER WITH ADDEDRANGE AND SAFETY.
AD-629 599 FLD. 18/4

• • •

ECOM-2626
A SIMPLE LEVEL INDICATOR FOR LIQUID HELIUMAT ALL TEMPERATURES.
AD-629 471 FLD. 14/2

• • •

ECOM-2634
IMPROVEMENT IN ACCURACY OF THE ML-419RADIOSONDE TEMPERATURE ELEMENT FOR HEIGHTSABOVE 90,000 FEET AND UP TO 130,000 FEET.
AD-629 859 FLD. 4/1

• • •

SAMPLING AND DIGITIZING OF METEOROLOGICALDATA,
AD-629 627 FLD. 4/2

•ARMY ENGINEER GEODESY INTELLIGENCE AND MAPPING RESEARCH AND DEVELOPMENT AGENCY FORT BELVOIR VA

• • •

25-TR
EVALUATION AND TEST OF A FIVE-COLORELECTROSTATIC PRINTING MACHINE FOR THEREPRODUCTION OF TOPOGRAPHIC MAPS ANDCHARTS.
AD-629 839 FLD. 14/5

•ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG MISS

• • •

LABORATORY DESIGN, ANALYSIS, AND FIELDCONTROL OF GROUTING MIXTURES EMPLOYED ATA NUCLEAR TEST IN SALT. (ARPA-VUF-3019)
AD-629 529 FLD. 18/3

• • •

FSTC-381-T65-481
METHODS FOR CALCULATING CANNING PRODUCTIONCOSTS; ACCELERATED METHOD FOR DETERMININGMOISTURE IN DRIED VEGETABLES: STUDYING THE USEOF SORBIC ACID IN CANNING FRUIT AND VEGETABLESAND RECONSTITUTION OF VEGETABLES DRIEDBY SUBLIMATION. (TT-65-64770)
AD-629 571 FLD. 6/8

• • •

FSTC-381-T65-532
CONCERNING THE HYGIENIC STUDY OF ENZYMEPREPARATIONS PRODUCED BY MICROFUNGI ANDTHEIR POSSIBLE USE IN THE FOOD INDUSTRY, (TT-65-64771)
AD-629 585 FLD. 6/8

• • •

FSTC-381-T65-546
CABBAGE THERAPY. MEDICINAL PROPERTIES OFTHE PLANTS ALOE AND CALENDULA, (TT-65-64767)
AD-629 584 FLD. 6/3

• • •

FSTC-381-T65-548
SOVIET SCIENTISTS HAVE SUCCESSFULLYRECONSTRUCTED PROTEIN FROM BACTERIOPHAGE, (TT-65-64768)
AD-629 569 FLD. 6/13

• • •

FSTC-381-T65-571
SIBERIAN CEDAR ON PINE ROOTSTOCK, (TT-65-64769)
AD-629 570 FLD. 2/6

•ARMY MEDICAL LAB (9TH) ST LOUIS MO

• • •

RB-65-1
SAMPLING PROGRAM FOR AIRBORNERADIOACTIVITY,
AD-629 516 FLD. 18/4

•ARMY MEDICAL RESEARCH LAB FORT KNOX KY

• • •

AMRL-TR-65-44
POTASSIUM SUPEROXIDE ATMOSPHERE CONTROLUNIT.
AD-629 556 FLD. 6/11

• • •

AMRL-TR-65-125
TOXIC HAZARDS RESEARCH UNIT DESIGN ANDCONSTRUCTION PHASE.
AD-624 973 FLD. 14/2

• • •

AMRL-TR-65-127
PERSONNEL RESTRAINT AND SUPPORT SYSTEMDYNAMICS.
AD-624 987 FLD. 6/2

• • •

AMRL-TR-65-133
SYSTRAN (SYSTEMS ANALYSIS TRANSLATOR): ADIGITAL COMPUTER PROGRAM.
AD-624 968 FLD. 9/2

• • •

AMRL-TR-65-138
INVESTIGATION OF 'PREDICTOR' DISPLAYS FORORBITAL RENDEZVOUS, PROGRAM SUMMARY.
AD-624 967 FLD. 22/3

• • •

AMRL-TR-65-140
GROUP PERFORMANCE AS A FUNCTION OF SIZE,STRUCTURE, AND TASK DIFFICULTY,
AD-624 922 FLD. 5/10

• • •

AMRL-TR-65-143
EVALUATION OF AN IMAGE QUALITYENHANCEMENT TECHNIQUE.
AD-624 970 FLD. 14/5

• • •

AMRL-TR-65-148
RESEARCH ON ANALYSIS OF AMINO ACIDS BY GASCHROMATOGRAPHY.
AD-624 969 FLD. 6/1

• • •

ARDG(FE
MECHANISMS OF SMOOTH MUSCLE RELAXATIONTHROUGH THE ANODAL CURRENT STIMULATION.
AD-624 739 FLD. 6/16

•ARMY RESEARCH INST OF ENVIRONMENTAL MEDICINE NATICK MASS

• • •

THE EFFECT OF ACUTE AND CHRONIC COLDEXPOSURE ON TISSUE LIPIDS IN THE RAT,
AD-624 794 FLD. 6/19

• • •

METABOLISM OF CARNITINE IN COLDACCLIMATED RATS,
AD-624 795 FLD. 6/19

• • •

TISSUE LACTIC DEHYDROGENASE ISOZYMES:VARIATION IN RATS DURING PROLONGED COLDEXPOSURE,
AD-624 796 FLD. 6/19

•ARMY RESEARCH OFFICE DURHAM N C

• • •

AROD-893:10
APPLICATIONS OF THE EXACTLY SOLUBLE ONEDIMENSIONAL MODEL OF TRANSFER REACTIONS,
AD-624 637 FLD. 20/8

• • •

AROD-893:101
A SOLUBLE SEMICLASSICAL PARTICLE TRANSFERPROBLEM,
AD-624 638 FLD. 20/8

• • •

AROD-968.91
ON SOME ASPECTS OF INTEGER LINEARPROGRAMMING,
AD-624 953 FLD. 12/2

• • •

AROD-1323:32
RIEMANN SURFACES WITH THE ABSOLUTE ABMAXIMUM PRINCIPLE,
AD-624 394 FLD. 12/1

• • •

AROD-3221:3
HALL EFFECTS, RESISTIVITY, AND THERMOPOWERIN FE AND FE(1-X)NI(X) FOR X=0 TO 0.2,
AD-624 381 FLD. 20/3

• • •

AROD-3269:17
0 DEGREE YIELD OF GAMMA RAYS IN THE T(P,GAMMA)4 HE REACTION.
AD-624 621 FLD. 20/8

• • •

AROD-3298:21
CUT-SET MATRICES AND LINEAR CODES,
AD-624 380 FLD. 9/4

• • •

AROD-3763:10
CARBAMETALLIC BORON HYDRIDE DERIVATIVES.I. APPARENT ANALOGS OF FERROCENE ANDFERRICINIUM ION,
AD-624 390 FLD. 7/2

• • •

AROD-3763:11
CARBAMETALLIC BORON HYDRIDE DERIVATIVES.II. APPARENT ANALOGS OF PI-C5H5MN(CO)3 ANDPI-C5H5RE(CO)3,
AD-624 389 FLD. 7/2

• • •

AROD-3763:12
CARBAMETALLIC BORON HYDRIDE DERIVATIVES.III. THE PI-C5H5FE(PI-B9C2H11)SYSTEM,
AD-624 388 FLD. 7/2

• • •

AROD-3763:13
B-PHENYL-1,2- DICARBA CLOVODODECARBORANE(12)FROM B9C2H11(-2) THROUGH AN INSERTION REACTION,
AD-624 387 FLD. 7/2

• • •

AROD-3763:14
REACTION OF B10H10(-2) WITH ARYLDIAZONIUMSALTS,
AD-624 386 FLD. 7/2

• • •

AROD-3763:15
THE PREPARATION AND REARRANGEMENT OF THETHREE ISOMERIC B20H18(-4)IONS,
AD-624 391 FLD. 7/2

• • •

AROD-3842:5
TRANSIENT ANALYSIS OF OBLIQUE IMPACT ONPLATES,
AD-624 379 FLD. 20/11

• • •

AROD-3952:3
VAPORIZATION CATALYSIS. THE DECOMPOSITIONOF GALLIUM NITRIDE,
AD-624 384 FLD. 7/4

• • •

AROD-4081:11
DYNAMIC BIREFRINGENCE AND MECHANICALLOSS SPECTRA OF CRYSTALLINE POLYMERS,
AD-624 382 FLD. 11/9

• • •

AROD-4131:10
PROTON-DEUTERON EXCHANGE OF THE RADICALIN IRRADIATED SINGLE CRYSTALS OF DL-ASPARTICACID: EFFECT OF THE CRYSTAL FIELD ON THECHEMICAL REACTION,
AD-624 385 FLD. 8/1

• • •

AROD-4934:3
THE STRUCTURE OF EXPLOSIVELY SHOCKEDHMGO CRYSTALS.
AD-624 639 FLD. 20/2

• • •

AROD-4938:2
MECHANICAL RELAXATION OF A POINT DEFECT INMAGNESIUM OXIDE,
AD-624 383 FLD. 20/2

• • •

AROD-4990:3
RESPONSE OF A CYLINDRICAL SHELL TO AN ELASTICWAVE,
AD-624 367 FLD. 20/11

• • •

AROD-9272:1
SF4 AND SOF2: INFRARED EVIDENCE FOR DIMERFORMATION AT LOW TEMPERATURES,
AD-624 402 FLD. 7/2

•ARMY TROPICAL RESEARCH MEDICAL LAB APO 891 NEW YORK

• • •

NUCLEOPROTEIN CHANGES IN THE INTESTINALMUCOSA OF PATIENTS WITH TROPICAL SPRUE,
AD-624 623 FLD. 6/5

•ARMY WEAPONS COMMAND ROCK ISLAND ILL RESEARCH AND ENGINEERING DIV

• • •

RIA-65-1888
COMPOSITE PLASTIC FILMS FOR FLEXIBLETRANSPARENT PACKAGING.
AD-624 574 FLD. 13/4

• • •

RIA-65-3029
IMPROVEMENT IN COMPRESSION SET RESISTANCEOF ELASTOMERIC VULCANIZATES USING CADMIUMOXIDE.
AD-624 744 FLD. 11/10

• • •

TR-65-2816
APPLICATION OF GAS CHROMATOGRAPHY TOANALYSES OF ARMY WEAPONS MATERIALS: IIANALYSIS OF FATTY ACIDS.
AD-624 819 FLD. 7/3

•ATLANTIC RESEARCH CORP ALEXANDRIA VA KINETICS AND COMBUSTION GROUP

• • •

RESEARCH ON THE DEFLAGRATION OF HIGH-ENERGYSOLID OXIDIZERS. (AFOSR-65-2291)
AD-624 533 FLD. 21/9.2

•AUBURN UNIV ALA

• • •

A STUDY OF THE EFFECTS OF DIELECTRIC PLUGLOADING ON SLOT ANTENNAS.
AD-624 682 FLD. 9/5

•AUTOMATION INDUSTRIES INC BOULDER COLO RESEARCH DIV

• • •

TR-65-79
ADVANCEMENT OF ULTRASONIC TECHNIQUESUSING RERADIATED SOUND ENERGIES FOR NONDESTRUCTIVE EVALUATION OF WELDMENTS.
AD-624 262 FLD. 13/8

• • •

HIGH-MOBILITY LOW-MELTING-POINT GROUP III-VCOMPOUND SEMICONDUCTORS. (AFOSR-2531)
AD-624 562 FLD. 20/12

• • •

RADC RELIABILITY PHYSICS NOTEBOOK, (RADC-TR-65-330)
AD-624 769 FLD. 14/4

•BATTELLE MEMORIAL INST COLUMBUS OHIO METAL SCIENCE GROUP

• • •

THE STRUCTURE OF EXPLOSIVELY SHOCKEDHMGO CRYSTALS. (AROD-4934:3)
AD-624 639 FLD. 20/2

•BEERS (ROLAND F) INC ALEXANDRIA VA

• • •

ANALYSIS OF GROUND MOTION AND CONTAINMENT. (ARPA-VUF-1026)
AD-624 522 FLD. 18/3

•BELL HELICOPTER CO FORT WORTH TEX

• • •

D228-921-021
CONTACT ANALOG SIMULATOR EVALUATIONS: THEINFLUENCE OF SCREEN SIZE AND IMAGE FIELD OFVIEW.
AD-624 979 FLD. 1/4

•BJORKSTEN RESEARCH FOUNDATION MADISON WIS

• • •

A COMPARISON OF TENDERNESS PARAMETERS INDEHYDRATED MEAT.
AD-629 306 FLD. 6/8

•BOEING SCIENTIFIC RESEARCH LABS SEATTLE WASH MATHEMATICS RESEARCH LAB

• • •

D1-82-0982
DESCENT OF THE BOUNDARY OF A SPHERE,
AD-629 745 FLD. 12/1

• • •

MATHEMATICAL NOTE-493
DESCENT OF THE BOUNDARY OF A SPHERE,
AD-629 745 FLD. 12/1

•BRITISH COLUMBIA UNIV VANCOUVER DEPT OF CHEMISTRY

• • •

PHOTOLYSIS OF NITRATE ESTERS, II. SOLUTIONPHOTOLYSIS OF ARALKYL NITRATE ESTERS:KINETICS, ESR SPECTRA, AND PHOTOPRODUCTS,
AD-629 906 FLD. 8/1

•BROOKE GENERAL HOSPITAL FORT SAM HOUSTON TEX

• • •

ANOMALOUS PULMONARY VENOUS RETURN,
AD-629 260 FLD. 6/5

•BROWN UNIV PROVIDENCE R I

• • •

AF-2498/8
ZERO-CUTOFF MODE IN DIELECTRIC-LOADEDCOAXIAL WAVEGUIDE,
(AFCRL-65-722)
AD-629 617 FLD. 9/1

• • •

SCIENTIFIC-8
ZERO-CUTOFF MODE IN DIELECTRIC-LOADEDCOAXIAL WAVEGUIDE,
(AFCRL-65-722)
AD-629 617 FLD. 9/1

• • •

NAVMED-MR004-14-1200-05
AUDITORY FATIGUE UNDERWATER AT 1900 CYCLESPER SECOND.
AD-629 753 FLD. 6/19

• • •

NAVMED-MR005.12-1408.7
MYOGLOBINURIA AND PERSISTENCE OF FETALMYOGLOBIN.
AD-629 340 FLD. 6/5

• • •

NAVMED-MR005.12-1700.7
GOODPASTURE'S SYNDROME. A CLINICOPATHOLOGICENTITY.
AD-629 339 FLD. 6/5

• • •

NAVMED-MR005.13-9010-902
THE EFFECTS OF ENVIRONMENTAL TEMPERATURECHANGES ON THE EKG OF THE SQUIRREL MONKEY(SAIMIRI SCIUREUS),
AD-629 927 FLD. 6/6

•BUREAU OF NAVAL WEAPONS WASHINGTON D C

• • •

NAVWEPS-16-1-533
MICROELECTRONIC ENGINEERING. VOLUME 1.FABRICATION TECHNOLOGY,
AD-629 319 FLD. 9/1

• • •

NAVWEPS-8832
CHEMOELECTRIC ENERGY CONVERSION FOR NONAQUEOUS RESERVE BATTERIES.
AD-629 811 FLD. 10/3

• • •

NAVWEPS-8961
OFFSHORE GRAVITY AND MAGNETIC ANOMALIESIN THE SANTA BARBARA CHANNEL, CALIFORNIA.
AD-629 700 FLD. 8/9

• • •

NAVWEPS-9009
INVERSE MAGNETOSTRICTIVE EFFECT OFULTRASONIC STRESS WAVES IN STEEL.
AD-629 691 FLD. 11/6

•BUREAU OF SHIPS WASHINGTON D C

• • •

939
THEORETICAL AND EXPERIMENTAL INVESTIGATIONON THE AIR- AND BODY-SOUND CONDUCTION FROMA SHIP'S PLATING INTO THE SURROUNDING WATER,
(TT-65-64779)
AD-629 690 FLD. 20/1

• • •

TRANS-944
BASES FOR THE DESIGN OF DEFINITIVELYSTRESSED CONSTRUCTION ELEMENTS MADE OFSYNTHETICS,
(TT-65-64677)
AD-629 432 FLD. 11/9

•BUREAU OF SPORT FISHERIES AND WILDLIFE WASHINGTON D C

• • •

BIOLOGICAL STUDIES OF THE PROBLEM OFBIRD HAZARD TO AIRCRAFT.
(SRDS-RD-65-73)
AD-629 469 FLD. 1/2

•C G S SCIENTIFIC CORP SOUTHAMPTON PA

• • •

OPERATION AND MAINTENANCE MANUAL FORVACUUM AND INBLEED CONTROL SYSTEM, AIR LOCKCONTROL SYSTEM, CHAMBER LINER DIFFERENTIALPRESSURE CONTROL SYSTEM AND INTERIOR GAS FLOWRECORDING SYSTEM FOR ALTITUDE RESEARCHCHAMBERS A1, A2, A3, AND A4.
AD-629 587 FLD. 14/2

•CALIFORNIA INST OF TECH PASADENA SEISMOLOGICAL LAB

• • •

SEISMIC RESULTS FOR GNOME AS OBSERVED BYTHE CALTECH NETWORK,
(AFOSR-65-2294)
AD-629 547 FLD. 8/11

•CALIFORNIA UNIV BERKELEY DEPT OF CHEMISTRY

• • •

ON THE BROMOPYRENES,
(AFOSR-65-1672)
AD-629 329 FLD. 7/3

•CALIFORNIA UNIV BERKELEY DEPT OF MATHEMATICS

• • •

COMMENTS ON DIFFERENTIABILITY OF SOLUTIONSOF BOUNDARY VALUE PROBLEMS.
AD-629 299 FLD. 12/1

•CALIFORNIA UNIV BERKELEY DEPT OF MECHANICAL ENGINEERING

• • •

TS-65-3
CALCULATION OF ENGINE PERFORMANCE USINGAMMONIA FUEL. II. DIESEL CYCLE.
AD-629 569 FLD. 21/4

• • •

ERL-65-26
SURFACE WAVES ON ANISOTROPIC SURFACES.
AD-629 602 FLD. 20/14

• • •

PERFATORY CHAPTER: THIRTY YEARS OF ATOMICCHEMISTRY,
(AFOSR-65-1667)
AD-629 369 FLD. 6/1

• • •

STIMULATION OF STEROID C-11-BETA AND C-18HYDROXYLATIONS IN RAT ADRENAL HOMOGENATESBY ADENOSINE 3',5'-PHOSPHATE VIA A MECHANISMNOT REQUIRING ENDOGENOUS PRECURSOR,

GLYCOGEN PHOSPHORYLATION OR NADPH GENERATION,
AD-629 412 FLD. 6/1

•CALIFORNIA UNIV LOS ANGELES DEPT OF CHEMISTRY

• • •

NATURE OF THE CHEMICAL REACTIVITY OFRADIOBROMINE ATOMS PRODUCED BY ISOMERICTRANSITION,
(AFOSR-65-1668)
AD-629 366 FLD. 8/1

• • •

POSITIVE-ION CHEMISTRY: HIGH YIELDS OFHEAVY HYDROCARBONS FROM SOLID METHANE BYIONIZING RADIATION,
(AFOSR-65-1666)
AD-629 368 FLD. 8/1

• • •

INTENSE 584-A LIGHT FROM A SIMPLE CONTINUOUSHELIUM PLASMA,
(AFOSR-65-1665)
AD-629 375 FLD. 20/9

• • •

ARTIFICIAL METALS: INSB, THE SN ALLOYS WITHINSB, AND METALLIC INTE,
(AFOSR-65-1664)
AD-629 377 FLD. 11/6

•CALIFORNIA UNIV LOS ANGELES DEPT OF PHYSICS

• • •

SUPERCONDUCTIVITY IN THE ARTIFICIAL METALS:METALLIC INDIUM ANTIMONIDE, THE INDIUM-ANTIMONIDE-TIN ALLOYS, AND METALLIC INDIUMTELLURIDE,
(AFOSR-65-1663)
AD-629 376 FLD. 20/12

• • •

COVALENCY PARAMETERS AND THE G FACTORFOR NI(2+): KMGF3,
AD-629 444 FLD. 7/4

• • •

MAGNETOSTATIC MODES IN ANTIFERROMAGNETSAND CANTED ANTIFERROMAGNETS,
AD-629 445 FLD. 20/3

•CALIFORNIA UNIV LOS ANGELES INST OF GEOPHYSICS AND PLANETARY PHYSICS

• • •

CRUSTAL STRUCTURE IN THE WISCONSIN AREA,
AD-629 629 FLD. 8/11

•CALIFORNIA UNIV OAKLAND NAVAL BIOLOGICAL LAB

• • •

PUBLICATIONS OF THE NAVAL BIOLOGICALLABORATORY, SCHOOL OF PUBLIC HEALTH,UNIVERSITY OF CALIFORNIA AND NAVAL MEDICALRESEARCH UNIT NO. 1, BERKELEY, CALIFORNIA.
AD-629 600 FLD. 6/5

•CALIFORNIA UNIV RIVERSIDE DEPT OF CHEMISTRY

• • •

REACTION OF B10H10(-2) WITH ARYLDIAZONIUMSALTS,
(AROD-3763:14)
AD-629 386 FLD. 7/2

• • •

B-PHENYL-1,2- DICARBA CLOVODODECARBORANE(12)FROM B9C2H11(-2) THROUGH AN INSERTION REACTION,
(AROD-3763:13)
AD-629 387 FLD. 7/2

• • •

CARBAMETALLIC BORON HYDRIDE DERIVATIVES.III. THE PI-C5H5FE(PI-B9C2H11)SYSTEM,
(AROD-3763:12)
AD-629 388 FLD. 7/2

• • •

CARBAMETALLIC BORON HYDRIDE DERIVATIVES.II. APPARENT ANALOGS OF PI-C5H5MN(CO)3 ANDPI-

798-319 O - 66 - 11

C5H5RE(CO)3,
(AROD-3763:11)
AD-629 389 FLD. 7/2

• • •

CARBAMETALLIC BORON HYDRIDE DERIVATIVES.I. APPARENT ANALOGS OF FERROCENE ANDFERRICINIUM ION,
(AROD-3763:10)
AD-629 390 FLD. 7/2

• • •

THE PREPARATION AND REARRANGEMENT OF THETHREE ISOMERIC B2OH18(-4)IONS,
(AROD-3763:15)
AD-629 391 FLD. 7/2

•CALIFORNIA UNIV SAN DIEGO DEPT OF CHEMISTRY

• • •

RESONANCE STABILIZATION OF ALPHA-FERROCENYLCARBONIUM IONS.
(AFOSR-65-1669)
AD-629 369 FLD. 7/3

•CALIFORNIA UNIV SAN DIEGO INST FOR RADIATION PHYSICS AND AERODYNAMICS

• • •

PROCEEDINGS OF THE CHEMICAL LASERCONFERENCE, UNIVERSITY OF CALIFORNIA, SANDIEGO, SEPTEMBER 9-11, 1969.
AD-629 317 FLD. 20/5

•CARNEGIE INST OF TECH PITTSBURGH PA

• • •

HALL EFFECTS, RESISTIVITY, AND THERMOPOWERIN FE AND FE(1-X)NI(X) FOR X=0 TO 0.2,
(AROD-3221:3)
AD-629 381 FLD. 20/3

•CARNEGIE INST OF TECH PITTSBURGH PA GRADUATE SCHOOL OF INDUSTRIAL ADMINISTRATION

• • •

MSRR-53
MANAGEMENT SCIENCES AND MANAGEMENT-SOME REQUIREMENTS FOR FURTHER DEVELOPMENT.
AD-629 729 FLD. 5/1

• • •

MSRR-54
PROPOSED RESEARCH ON MANAGEMENT INFORMATION SYSTEMS.
AD-629 730 FLD. 5/1

•CASE INST OF TECH CLEVELAND OHIO DEPT OF PHYSICS

• • •

TR-19
HARTREE-FOCK CALCULATIONS OF FINITENUCLEI.
AD-629 319 FLD. 20/8

•CEDARS-SINAI MEDICAL CENTER LOS ANGELES CALIF CORNEA EYE INST

• • •

PRINCIPLES OF POLYMER IMPLANT APPLICATIONS,
AD-629 621 FLD. 6/5

•CENTER FOR NAVAL ANALYSES WASHINGTON D C SYSTEMS EVALUATION GROUP

• • •

RESEARCH CONTRIBUTION-1
CONCEPTS AND TECHNIQUES FOR SUMMARIZINGDEFENSE SYSTEM COSTS,
AD-629 947 FLD. 5/1

•CENTRE DE PHYSIQUE ELECTRONIQUE ET CORPUSCULAIRE ORSAY (FRANCE)

• • •

BR-1456
HALF MILLIMETER 'BACKWARD WAVEOSCILLATOR'.
(RADC-TR-65-519)
AD-629 695 FLD. 9/1

• • •

CRDL-TM-7-3
THE WISWESSER LINE-NOTATION: ANINTRODUCTION.
AD-629 525 FLD. 7/3

•CHICAGO UNIV ILL

• • •

CATEGORICAL ALGEBRA,
(AFOSR-65-1042)
AD-629 371 FLD. 12/1

•CHICAGO UNIV ILL INST FOR THE STUDY OF METALS

• • •

BESTIMMUNG DES KLEINSTEN LONENABSTANDES INIONISCHEN SCHMELZEN MITTELS KERNRESONANZ(DETERMINATION OF THE CLOSEST APPROACH OF IONS IN IONICMELTS BY MEANS OF NUCLEAR RESONANCE),
(AFOSR-65-1674)
AD-629 339 FLD. 7/4

• • •

TR-19
ZEEMAN SPLITTING OF NARROW LINES INCRYSTALLINE MNF2, FEF2, AND COF2. EVIDENCEFOR SPIN-WAVE EXCITATIONS.
AD-629 809 FLD. 7/4

•CINCINNATI UNIV OHIO DEPT OF AEROSPACE ENGINEERING

• • •

TR-AE-6804
COMPRESSIBLE VISCOUS FLOW OVER SLENDERBODIES WITH PRESSURE GRADIENT, VARIABLEFLUID PROPERTIES, ARBITRARY LAWS OF SURFACETEMPERATURE AND FOREIGN GAS INJECTIONVELOCITY DISTRIBUTION.
AD-629 496 FLD. 20/4

•CINCINNATI UNIV OHIO DEPT OF MICROBIOLOGY

• • •

BIOTIN TRANSPORT AND ACCUMULATION BY CELLSOF LACTOBACILLUS PLANTARUM. I. GENERALPROPERTIES OF THE SYSTEM,
AD-629 491 FLD. 6/13

•CLARENDON LAB UNIV OF OXFORD (ENGLAND)

• • •

THEORIES OF MAGNETISM.
AD-629 792 FLD. 20/3

•CLEVITE CORP BEDFORD OHIO PIEZOELECTRIC DIV

• • •

PRESSOCEPTIVE AND CHEMOCEPTIVE AORTICREFLEXES IN DECORTICATE AND IN DECEREBRATECATS,
(AFOSR-65-2242)
AD-629 832 FLD. 6/16

•CLINICAL INVESTIGATION CENTER OAKLAND CALIF

• • •

CIC-TR-9
GOODPASTURE'S SYNDROME. A CLINICOPATHOLOGICENTITY.
(NAVMED-MR005.12-1700.7)
AD-629 329 FLD. 6/5

• • •

CIC-TR-10
DEPERSONALIZATION IN SPACEMEN ANDSUBMARINERS.
AD-629 336 FLD. 5/10

• • •

CIC-TR-11
BODY-BUFFER ZONE. EXPLORATION OF PERSONALSPACE.
AD-629 337 FLD. 5/10

• • •

CIC-TR-12
HUMAN SPATIAL BEHAVIOR.
AD-629 338 FLD. 5/10

• • •

CIC-TR-13
MYOGLOBINURIA AND PERSISTENCE OF FETALMYOGLOBIN.
(NAVMED-MR005.12-1408.7)
AD-629 340 FLD. 6/5

• • •

CIC-TR-14
SEROLOGIC INDICES OF MENTAL DISORDERS.
AD-629 335 FLD. 6/5

• • •

CIC-TR-15
RADIOTHYROXINE TURNOVER IN OBESITY.
AD-629 334 FLD. 6/5

• • •

433
COLORIMETRIC MEASUREMENTS OF SELECTEDCOLOR CARDS,
AD-629 734 FLD. 20/6

• • •

SR-93
INVESTIGATION OF SUGAR CANE VIGOR WITH AERIALPHOTOGRAPHY IN PUERTO RICO.
AD-629 629 FLD. 2/4

• • •

TR-127
PRELIMINARY INVESTIGATIONS OF PERMACRETE.
AD-629 798 FLD. 13/3

•COLORADO UNIV BOULDER DEPT OF CHEMICAL ENGINEERING

• • •

EXPERIMENTAL PROGRAM TO DETERMINE THETHERMODYNAMIC PROPERTIES OF SOLUTIONSLIQUEFIED LIGHT GASES.
AD-629 942 FLD. 20/13

•COLORADO UNIV BOULDER DEPT OF CHEMISTRY

• • •

BRIDGED POLYCYCLIC COMPOUNDS. XXVIII. THEPROTON MAGNETIC RESONANCE SPECTRA OF SOMEDIBENZOBICYCLO(3.2.1/OCTADIENES,
(AFOSR-65-1646)
AD-629 373 FLD. 7/3

•COLUMBIA UNIV NEW YORK

• • •

THE ACTUAL MASS OF POTENTIAL ENERGY, A CORRECTION TO CLASSICAL RELATIVITY,
AD-629 917 FLD. 20/10

• • •

THE ACTUAL MASS OF POTENTIAL ENERGY, II,
AD-629 918 FLD. 20/10

•COLUMBIA UNIV NEW YORK COLL OF PHYSICIANS AND SURGEONS

• • •

INCORPORATION OF TRITIATED THYMIDINE BYOCULAR TUMORS IN VITRO,
AD-629 919 FLD. 6/5

• • •

EL DESTINO DE TRANSPLANTE DE CORNEA(RESULTS OF CORNEA TRANSPLANTS),
AD-629 619 FLD. 6/5

•COMPUTER SCIENCE DIV STANFORD UNIV CALIF

• • •

CS29
ON IMPROVING AN APPROXIMATE SOLUTION OF AFUNCTIONAL EQUATION BY DEFERRED CORRECTIONS.
AD-629 837 FLD. 12/1

• • •

CS-30
THE AUTOMATIC CONSTUCTION OF COMPUTATIONALALGORITHMS.
(TT-65-64824)
AD-629 829 FLD. 9/2

•CORNELL AERONAUTICAL LAB INC BUFFALO N Y

• • •

CAL-141
THE EFFECTS OF MASS-TRANSFER ON THEDYNAMIC STABILITY OF SLENDER

CONES.
AD-624 933 FLD. 20/4

•CORNELL UNIV ITHACA N Y GRADUATE SCHOOL OF AEROSPACE ENGINEERING
• • •
ELECTROHYDRODYNAMIC FLOW OVER A WAVYWALL.
(AFOSR-65-1768)
AD-624 906 FLD. 20/9

•CORNELL-DUBILIER ELECTRONICS DIV FEDERAL PACIFIC ELECTRIC CO NORWOOD MASS
• • •
PRODUCTION ENGINEERING MEASURE FORCAPACITORS, FEED-THROUGH, SOLID ELECTROLYTETANTALUM PELLET.
AD-624 913 FLD. 9/1

•CORNING GLASS WORKS BRADFORD PA ELECTRONICS DIV
• • •
APPLICATION OF OPTICAL FABRICATIONTECHNIQUES TO THE FABRICATION AND DEVELOPMENT OF FLUID AMPLIFIERS AND FLUID CIRCUITS.
AD-624 773 FLD. 13/7

•COSMIC INC WASHINGTON D C
• • •
COSMIC-96
RADAR SCATTERING FROM SATELLITE WAKES.
(RADC-TR-65-283)
AD-624 940 FLD. 17/9

•DAVID TAYLOR MODEL BASIN WASHINGTON D C HYDROMECHANICS LAB
• • •
DTMB-2129
MERIT COMPARISONS OF THE SERIES 64 HIGHSPEED DISPLACEMENT HULL FORMS.
AD-624 688 FLD. 13/10

•DEFENCE CHEMICAL BIOLOGICAL AND RADIATION LABS OTTAWA (ONTARIO)
• • •
DCBRL-949
PAPER CHROMATOGRAPHY OF SOME AMINEHYDROCHLORIDES AND ACETATES IN ACIDIC SOLVENTSYSTEMS.
AD-624 249 FLD. 7/3

•DEFENSE SYSTEMS LAB SYRACUSE UNIV RESEARCH CORP N Y
• • •
DSL-R-136
A HIGH PERFORMANCE LOG VIDEO AMPLIFIER.
AD-624 295 FLD. 9/5

•DENVER RESEARCH INST COLO
• • •
DRI-2290
RESEARCH ON NEW TYPES OF ANTENNA SYSTEMSFOR THE FREQUENCY RANGE 30-1000 MC.
AD-624 478 FLD. 9/5

•DENVER UNIV COLO
• • •
A PERT INFLUENCED REFLECTIVE THINKINGAPPROACH TO PROBLEM-SOLVING DISCUSSION.
AD-624 670 FLD. 5/10

•DEPUTY CHIEF OF STAFF FOR PERSONNEL (ARMY) WASHINGTON D C
• • •
SERGEANTS MAJOR PERSONNEL CONFERENCE.
AD-624 973 FLD. 5/9

•DIRECTORATE OF CIVILIAN PERSONNEL (AF) WASHINGTON D C PERSONNEL RESEARCH BRANCH
• • •
RR-65-4
DEVELOPMENT OF A NON-VERBAL LEARNINGABILITY TEST FOR NON-U.S. CITIZEN PERSONNELOVERSEAS.
AD-624 692 FLD. 5/9

•DIRECTORATE OF SCIENTIFIC INFORMATION SERVICES OTTAWA (ONTARIO)
• • •
T-1-SI
A PYROLYTIC CELL FOR THE CHROMATOGRAPHICSTUDY OF POLYMERS.
(TT-65-64803)
AD-624 841 FLD. 14/2
• • •
T-4-Y
SUVAG AND SUVAG-LINGUA SPEECH ANALYSERS.
(TT-65-64804)
AD-624 840 FLD. 6/12

•DUKE UNIV DURHAM N C
• • •
ACTIVE IMMUNIZATION VS. COCCIDIOIDES IMMITIS.
AD-624 911 FLD. 6/13

•DUKE UNIV DURHAM N C DEPT OF PHYSICS
• • •
PROTON-DEUTERON EXCHANGE OF THE RADICALIN IRRADIATED SINGLE CRYSTALS OF DL-ASPARTICACID: EFFECT OF THE CRYSTAL FIELD ON THECHEMICAL REACTION.
(AROD-4131:10)
AD-624 389 FLD. 8/1

•EAGLE-PICHER RESEARCH LABS MIAMI OKLA CHEMICAL AND METALS DIV
• • •
RESEARCH INVESTIGATIONS IN THE PHYSICALCHEMISTRY AND METALLURGY OF SEMICONDUCTINGMATERIALS.
AD-624 251 FLD. 20/12

•ELECTRICAL ENGINEERING RESEARCH LAB UNIV OF TEXAS AUSTIN
• • •
15
MICROWAVE PHASE FRONT MEASUREMENTS FOROVERWATER PATHS OF 12 AND 32 MILES.
AD-624 628 FLD. 20/14

•ELECTRONIC DEFENSE LABS SYLVANIA ELECTRONIC SYSTEMS-WEST MOUNTAIN VIEW CALIF
• • •
TECHNIQUES FOR SUPER-MODE OSCILLATION.
AD-624 845 FLD. 20/5
• • •
EDL-M-788
SHF SEQUENTIAL LOBING SYSTEM.
AD-624 304 FLD. 9/5

•ELECTRONIC SYSTEMS DIV L G HANSCOM FIELD MASS
• • •
ESD-TDR-63-170
USING AN ANALOG COMPUTER TO ANALYZETRANSISTOR CIRCUIT PERFORMANCE.
AD-624 490 FLD. 9/1
• • •
ESD-TDR-64-149
ON MAPPINGS FOR MODULAR ARITHMETIC, II.
AD-624 489 FLD. 9/2
• • •
ESD-TDR-65-318
SOLID STATE RESEARCH.
AD-624 611 FLD. 20/11
• • •
ESD-TDR-65-445
THE DATA RECOVERY CENTER TARGET SIMULATOR.
AD-624 362 FLD. 9/2
• • •
ESD-TDR-65-450
ELECTRODEPOSITED MAGNETIC FILM DEVELOPMENT.
AD-624 930 FLD. 9/1
• • •
ESD-TDR-65-460
LES-4 SPIN AXIS ORIENTATION SYSTEM.
AD-624 398 FLD. 22/2
• • •
ESD-TDR-65-498
SIMULATION OF RADAR BACKSCATTERING IN ARIPPLE TANK.
AD-624 733 FLD. 20/14
• • •
ESD-TDR-65-500
SCATTERING OF SHORT PULSES OF ELECTROMAGNETIC WAVES.
AD-624 732 FLD. 20/14
• • •
ESD-TDR-65-503
THE LORENTZ FORCE.
AD-624 723 FLD. 20/3
• • •
ESD-TDR-65-545
RADIO ECHO OBSERVATIONS OF VENUS ANDMERCURY AT 23 CM WAVELENGTH.
AD-624 731 FLD. 3/1
• • •
ESD-TDR-65-548
PREPARATION AND PARAMAGNETISM OF THE RAREEARTH TRIFLUORIDES.
AD-624 722 FLD. 7/2
• • •
ESD-TDR-65-554
GRADIENT MATRICES AND MATRIX CALCULATIONS.
AD-624 926 FLD. 12/1

•ELECTRO-OPTICAL SYSTEMS INC PASADENA CALIF
• • •
EOS-5830-M-10
RESEARCH OF ION IMPLANTATION DOPINGTECHNIQUES.
AD-624 549 FLD. 20/12

•ENRICO FERMI INST FOR NUCLEAR STUDIES UNIV OF CHICAGO ILL
• • •
QUASI-FREE PROTON SCATTERING IN LIGHT NUCLEIAT 460 MEV.
(AFOSR-65-1678)
AD-624 318 FLD. 20/8

•EWEN KNIGHT CORP EAST NATICK MASS
• • •
SCIENTIFIC-3
MOLECULAR ATMOSPHERIC OXYGEN HORIZONSTUDY DATA EVALUATION STUDY REPORT.
(AFCRL-65-820)
AD-624 619 FLD. 22/2

•FEDERAL COUNCIL FOR SCIENCE/TECHNOLOGY WASHINGTON D C COMMITTEE ON SCIENTIFIC/TECHNICAL INFORMATION
• • •
RECOMMENDATIONS FOR NATIONAL DOCUMENTHANDLING SYSTEMS IN SCIENCE AND TECHNOLOGY.
AD-624 560 FLD. 5/2

•FLORIDA STATE UNIV TALLAHASSEE
• • •
SURVEILLANCE PROBLEMS: WIENER PROCESSES.
AD-624 673 FLD. 12/2

•FLORIDA STATE UNIV TALLAHASSEE DEPT OF METEOROLOGY
• • •
THE DYNAMICS OF STRATOSPHERIC CIRCULATIONS.
(AFCRL-65-585)
AD-624 541 FLD. 4/1

•FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
• • •
FTD-MT-64-434

ON THE RATE OF SPREADING OF FATIGUE CRACKS,
(TT-65-64789)
AD-624 738 FLD. 20/11

• • •

FTD-MT-64-937
DETERMINATION OF VERTICAL WIND GUSTS ON THEBASIS OF OSCILLATIONS OF AIRCRAFT IN FLIGHTWITH THE PILOT'S ACTION ON CONTROL LEVERSTAKEN INTO ACCOUNT,
(TT-65-64790)
AD-624 739 FLD. 1/1

• • •

FTD-MT-64-955
CERTAIN RESULTS OF INVESTIGATION OF ACENTRIPETAL GAS TURBINE WITH NOZZLEADJUSTMENT,
(TT-65-64793)
AD-624 767 FLD. 21/5

• • •

FTD-MT-64-983
PECULIARITIES OF CREATION OF HEAT-RESISTANTFRICTIONAL MATERIALS,
(TT-65-64791)
AD-624 760 FLD. 11/4

• • •

FTD-MT-65-10
CALCULATION OF A LAMINAR BOUNDARY LAYERFOR SUBLIMABLE SURFACE,
(TT-65-64792)
AD-624 761 FLD. 20/4

• • •

FTD-MT-65-57
MANUFACTURE OF BASIC COMPONENTS ANDASSEMBLIES OF AIRCRAFT ENGINES,
(TT-65-64797)
AD-624 820 FLD. 21/5

• • •

FTD-TT-65-789
CAN A MACHINE THINK.
(TT-65-64810)
AD-624 854 FLD. 6/4

• • •

FTD-TT-65-804
CONVERTER OF ELECTROMAGNETIC WAVES INTOHYPERSONIC WAVES,
(TT-65-64805)
AD-624 849 FLD. 20/1

• • •

FTD-TT-65-819
METHOD OF SHORT-WAVE RADIO COMMUNICATIONTHROUGH THE POLAR ZONE,
(TT-65-64800)
AD-624 859 FLD. 17/2.1

• • •

FTD-TT-65-830
A SYSTEM FOR PROGRAMMING AUTOMATION,
(TT-65-64782)
AD-624 726 FLD. 9/2

• • •

FTD-TT-65-891
THE GAAS SEMICONDUCTOR LASER,
(TT-65-64784)
AD-624 728 FLD. 20/5

• • •

FTD-TT-65-931
NEWS OF SCHOOLS OF HIGHER EDUCATION.MATHEMATICS. (SELECTED ARTICLES),
(TT-65-64807)
AD-624 851 FLD. 12/1

• • •

FTD-TT-65-1015
THE ROLE OF KINETIC AND DIFFUSIONAL FACTORSIN THE COMBUSTION OF FUELS IN GAS-TURBINEENGINES,
(TT-65-64780)
AD-624 729 FLD. 21/4

• • •

FTD-TT-65-1026
AN ANALYSIS OF THE RESULTS OF INVESTIGATIONSOF A MODEL TURBINE STAGE USING COMPUTERS,
(TT-65-64802)
AD-624 836 FLD. 10/1

• • •

FTD-TT-65-1028
COMPUTATION OF TEMPERATURE FIELDS ANDSTRESSES IN THE COOLED ROTOR OF A GAS TURBINEON STARTING,
(TT-65-64808)
AD-624 852 FLD. 21/5

• • •

FTD-TT-65-1032
DETERMINATION OF THE OPTIMUM DIMENSIONSOF RADIATING FINS,
(TT-65-64806)
AD-624 850 FLD. 20/13

• • •

FTD-TT-65-1562
MAGNETIC OPERATIONAL MEMORY DEVICE OF ANINFORMATION-LOGICAL MACHINE,
(TT-65-64809)
AD-624 853 FLD. 9/2

• • •

FTD-TT-65-1610
STUDYING CONDUCTIVITY OF PLASMA IN A TRANSVERSE MAGNETIC FIELD,
(TT-65-64801)
AD-624 835 FLD. 20/9

• • •

FTD-TT-65-1658
POLIZ-63 INTERPRETER,
(TT-65-64783)
AD-624 727 FLD. 9/2

• • •

FTD-TT-65-1662
SYNTHESIS AND PROPERTIES OF ORGANOELEMENTALPOLYMERS WITH SILICON, GERMANIUM, AND TININ THE CHAIN,
(TT-65-64781)
AD-624 725 FLD. 7/3

•FRANK J SEILER RESEARCH LAB AIR FORCE ACADEMY COLO

• • •

SRL-65-5
CARBON-13 MAGNETIC RESONANCE SPECTRA OF1-SUBSTITUTED 1-HEXYNES,
AD-624 405 FLD. 7/3

•FRANKFORD ARSENAL PHILADELPHIA PA

• • •

R-1781
QUALIFICATION OF THRUSTER, CARTRIDGEACTUATED, XM25.
AD-624 425 FLD. 19/1

• • •

I-A2049-25
A BIBLIOGRAPHY (WITH ABSTRACTS) ON GASLUBRICATED BEARINGS.
AD-624 288 FLD. 13/9

• • •

T-A2049-26
AEROSTATIC (EXTERNALLY-PRESSURIZED GASLUBRICATED) THRUST BEARINGS,
(TT-65-64616)
AD-624 289 FLD. 13/9

• • •

A GENERAL TREATMENT OF EQUILIBRIUMCOPOLYMERIZATION,
(AFOSR-65-1634)
AD-624 279 FLD. 7/4

•FROST ENGINEERING DEVELOPMENT CORP DENVER COLO

• • •

PERSONNEL RESTRAINT AND SUPPORT SYSTEMDYNAMICS.
(AMRL-TR-65-127)
AD-624 487 FLD. 6/2

•GENERAL ELECTRIC CO AUBURN N Y SEMICONDUCTOR PRODUCTS DEPT

• • •

A PRODUCT ENGINEERING MEASURE FOR THEIMPROVEMENT OF PRODUCTION TECHNIQUES TOINCREASE THE RELIABILITY AND TO IMPROVEPRODUCT CAPABILITY OF HIGH VOLTAGE MINIATURESILICON RECTIFIERS.
AD-624 898 FLD. 9/1

• • •

R69SD24
THE REFLECTION OF A SHOCK WAVE AT ASURFACE.
AD-624 972 FLD. 20/4

• • •

INVESTIGATION OF THE NATURE OF STRUCTURALDAMAGE IN METAL-FORMING PROCESSES.
AD-624 297 FLD. 13/8

• • •

TIME-OF-FLIGHT SPECTROMETER.
AD-624 825 FLD. 14/2

•GENERAL ELECTRIC RESEARCH LAB SCHENECTADY N Y

• • •

RES. LAB. REPRINT-5192
CHEMISORPTION ON SINGLE-CRYSTAL PLANES:NITROGEN ON TUNGSTEN,
(AFOSR-65-1643)
AD-624 287 FLD. 7/4

•GEORGE WASHINGTON UNIV WASHINGTON D C

• • •

AN ANALYSIS TO DETERMINE IF THE DEPARTMENTOF DEFENSE SHOULD OWN OR LEASE COMMUNICATIONS SATELLITES.
AD-624 678 FLD. 17/2.1

•GEORGE WASHINGTON UNIV WASHINGTON D C LOGISTICS RESEARCH PROJECT

• • •

FINDING THE INVERSE AND CONNECTIONS OF ATYPE OF LARGE SPARSE MATRIX,
AD-624 674 FLD. 12/2

•GEORGE WASHINGTON UNIV WASHINGTON D C SCHOOL OF ENGINEERING AND APPLIED SCIENCE

• • •

4
ON THE STABILITY AND DYNAMIC BEHAVIOR OFCASCADED THERMOELECTRIC DEVICES,
AD-624 828 FLD. 9/1

•GEORGIA INST OF TECH ATLANTA

• • •

A METHOD FOR INVESTIGATING THE BEHAVIOR OFATTRIBUTES WHICH BELONG TO INFORMATIONSTORAGE AND RETRIEVAL SYSTEMS.
AD-624 658 FLD. 9/2

• • •

THE EFFECT OF CHEMICAL WETTING AGENTS ONTHE COMPACTION OF CLAY AND SILT SOILS.
AD-624 659 FLD. 8/13

•GEORGIA INST OF TECH ATLANTA ENGINEERING EXPERIMENT STATION

• • •

X-RAY DIFFRACTION STUDIES OF THERMAL MOTIONSIN CRYSTALS.
AD-624 823 FLD. 20/2

• • •

300.A-744
A FREQUENCY MEASURING SPECTRUM ANALYZER.
(RADC-TR-65-338)
AD-624 698 FLD. 20/6

•GPL DIV GENERAL PRECISION INC PLEASANTVILLE N Y

• • •

GPL-A-31-2
PUMPED TRANSFORMER LASERS.
AD-624 481 FLD. 20/5

•GRUMMAN AIRCRAFT ENGINEERING CORP BETHPAGE N Y

• • •

XAR-A-45
EXPERIMENTAL STUDY OF HIGH SPEEDHYDROFOILS, VOLUME II, PART IV,
AD-624 413 FLD. 13/10

• • •

RM-294J
A DISTRIBUTIONAL STUDY OF THE

REAL FREQUENCYBEHAVIOR OF PASSIVE SYSTEMS.
(AFOSR-65-2306)
AD-624 771 FLD. 9/5

•GULTON INDUSTRIES INC METUCHEN N J
ALKALINE BATTERY DIV
• • •
4
DESIGN, FABRICATION AND TESTING OF VENTED,RECHARGEABLE SILVER-CADMIUM CELLS.
AD-624 907 FLD. 10/3
• • •
4
DESIGN, FABRICATION AND TESTING OF SEALED,RECHARGEABLE SILVER-CADMIUM CELLS.
AD-624 910 FLD. 10/3
• • •
TM-65-41
AN OPTICAL SURFACE DISCRIMINATOR,
AD-624 286 FLD. 20/6
• • •
TM-65-44
EXPERIMENTAL MECHANICAL TIMER WITHDETATCHED LEVER ESCAPEMENT AND DIGITALREADOUT SYSTEM,
AD-624 746 FLD. 14/2
• • •
TM-65-49
DIGITAL GENERATION OF BAND-LIMITED GAUSSIANNOISE,
AD-624 689 FLD. 9/3

•HARVARD COLL OBSERVATORY CAMBRIDGE MASS
• • •
SCIENTIFIC-4
ASTROPHYSICAL IMPLICATIONS OFAUTOIONIZATION.
AD-624 713 FLD. 3/2
• • •
SCIENTIFIC-8
LINE-REVERSAL MEASUREMENTS OFEXCITATION AND ELECTRON TEMPERATURE IN ASHOCK TUBE.
AD-624 714 FLD. 7/4

•HARVARD COLL OBSERVATORY CAMBRIDGE MASS SOLAR DEPT
• • •
SR-4
COMPARISON OF ATOMIC LS-COUPLING LINE ANDMULTIPLET STRENGTHS WITH OBSERVATIONS OF FE I.
(AFCRL-65-723)
AD-624 275 FLD. 3/2
• • •
SR-7
METHOD FOR CALCULATING MATRIX ELEMENTSBETWEEN CONFIGURATIONS WITH SEVERAL OPEN ISHELLS.
(AFCRL-65-807)
AD-624 276 FLD. 7/4

•HARVARD UNIV CAMBRIDGE MASS DEPT OF CHEMISTRY
• • •
ASPECTS OF THE CHEMISTRY OF PERESTERS,
AD-624 916 FLD. 7/3

•HARVARD UNIV CAMBRIDGE MASS DEPT OF MATHEMATICS
• • •
SECONDARY FLOW IN A VISCOUS VORTEX,
AD-624 580 FLD. 20/4

•HEBREW UNIV JERUSALEM (ISRAEL)
• • •
UTILITY FUNCTIONS OF MONEY FOR CLEARGAMES,
AD-624 672 FLD. 12/2

•HIGH ENERGY PHYSICS LAB STANFORD UNIV CALIF
• • •
HEPL-391
STUDY OF NUCLEAR EXCITATIONS IN B10, B11,AND N14 BY INELASTIC ELECTRON SCATTERINGAT 180 DEG,
AD-624 270 FLD. 20/8
• • •
HEPL-406
BEAM INSTABILITIES IN THE PRINCETONSTANFORD STORAGE RINGS,
AD-624 271 FLD. 20/8
• • •
HEPL-411
CHARGE DISTRIBUTIONS OF CA40 AND CA44 FROM250 MEV ELECTRON SCATTERING,
AD-624 272 FLD. 20/8

•HILLER AIRCRAFT DIV FAIRCHILD HILLER CORP PALO ALTO CALIF
• • •
HEAVY-LIFT TIP TURBOJET ROTOR SYSTEM.VOLUME XI. ENGINE DESIGN.
AD-624 716 FLD. 1/3
• • •
HEAVY-LIFT TURBOJET ROTOR SYSTEM.VOLUME XII. FUEL PUMP AND CONTROL SYSTEMDESIGN.
AD-624 822 FLD. 1/3
• • •
ENGINEERING-64-43
HEAVY-LIFT TURBOJET ROTOR SYSTEM.VOLUME III. DESIGN LAYOUT STUDIES.
(USAAVLABS-TR-64-68C)
AD-624 762 FLD. 1/3
• • •
ENGINEERING-64-44
HEAVY-LIFT TURBOJET ROTOR SYSTEM.VOLUME IV. STATIC AND DYNAMIC LOADS.
(USAAVLABS-TR-64-68D)
AD-624 763 FLD. 1/3
• • •
ENGINEERING-64-48
HEAVY-LIFT TIP TURBOJET ROTOR SYSTEM.VOLUME VIII. WIND-TUNNEL STUDIES.
(USAAVLABS-TR-64-68H)
AD-624 814 FLD. 1/3
• • •
HILLER-ER-64-46
HEAVY-LIFT TIP TURBOJET ROTOR SYSTEM.VOLUME VI. DYNAMIC AND AEROELASTIC STUDIES.
AD-624 764 FLD. 1/3
• • •
HILLER-ER-64-47
HEAVY-LIFT TIP TURBOJET ROTOR SYSTEM.VOLUME VII. WEIGHT AND BALANCE STUDIES.
(USAAVLABS-TR-64-68G)
AD-624 813 FLD. 1/3

•HIROSHIMA UNIV (JAPAN) DEPT OF PHYSIOLOGY
• • •
MECHANISMS OF SMOOTH MUSCLE RELAXATIONTHROUGH THE ANODAL CURRENT STIMULATION.
(ARDG(FE)-J-220)
AD-624 739 FLD. 6/16

•HRB-SINGER INC STATE COLLEGE PA
• • •
87311-F
DISPLACEMENT: SOCIAL AND PSYCHOLOGICALPROBLEMS.
AD-624 519 FLD. 5/11

•HUGHES AIRCRAFT CO FULLERTON CALIF
• • •
FR-65-10-182
RADIATION EFFECTS ON MICROELECTRONICCIRCUITS (SEMICONDUCTOR).
(ECOM-01313-1)
AD-624 961 FLD. 9/1
• • •
HAC-FR-65-10-46
HYBRID COMPUTATION OF TRANSIENT RADIATIONEFFECTS ON ELECTRONICS.
AD-624 559 FLD. 18/8

•HUGHES AIRCRAFT CO NEWPORT BEACH CALIF MICROELECTRONICS DIV
• • •
SEMICONDUCTOR DESIGN EFFECTS ON RADIATIONRESISTANCE.
AD-624 509 FLD. 18/8

•HUMAN FACTORS RESEARCH INC LOS ANGELES CALIF
• • •
TR-751-5
GEOGRAPHIC ORIENTATION IN AIRCRAFT PILOTS:METHODOLOGICAL ADVANCEMENT.
AD-624 616 FLD. 1/2

•IDAHO UNIV MOSCOW
• • •
NEW HYPOFLUORITES CONTAINING NITROGEN.
AD-624 691 FLD. 7/2

•IDAHO UNIV MOSCOW DEPT OF PHYSICAL SCIENCES
• • •
REACTIVE INTERMEDIATES IN THE BICYCLO/3.1.0/HEXYL AND BICYCLO/3.1.0/ HEXYLIDENE SYSTEMS.I. THE ACID-CATALYZED ADDITION OF METHANOLAND ACETIC ACID TO BICYCLO/3.1.0/HEXENE-2,
(AFOSR-65-1693)
AD-624 369 FLD. 7/3
• • •
MECHANICAL RELAXATION OF A POINT DEFECT INMAGNESIUM OXIDE.
(AROD-4918:2)
AD-624 383 FLD. 20/2
• • •
SYMPOSIUM ON PHYSICS AND NONDESTRUCTIVETESTING, HELD AT SHERATON-DAYTON HOTEL,DAYTON, OHIO, SEPTEMBER 28-30, 1965.
AD-624 582 FLD. 13/8
• • •
IITRI-A6093-12
CONTINUOUS FACSIMILE SCANNER EMPLOYINGFIBER OPTICS.
AD-624 696 FLD. 17/2
• • •
IITRI-U6020-6
A FEASIBILITY STUDY TO INCREASE THE ACTIVITYOF OXIDES WITH OXYGEN AND TO LOWER THEIGNITION TEMPERATURE OF SLURRY METALS.
AD-624 540 FLD. 21/9.2

•ILLINOIS INST OF TECH CHICAGO DEPT OF MECHANICAL AND AEROSPACE ENGINEERING
• • •
A 'STATIC' SOLUTION TO A 'DYNAMIC' PROBLEM INACQUISITION PROBABILITY,
AD-624 677 FLD. 19/1

•ILLINOIS UNIV URBANA COORDINATED SCIENCE LAB
• • •
R-269
STOCHASTIC FLOW OF MESSAGES AND ITSEFFICIENT TRANSMISSION THROUGH COMMUNICATIONNETS,
AD-624 255 FLD. 9/4
• • •
R-271
ION OSCILLATIONS IN A WEAKLY TURBULENTPLASMA,
AD-624 604 FLD. 20/9

•ILLINOIS UNIV URBANA ELECTRICAL ENGINEERING RESEARCH LAB
• • •
TR-4
ON CLASSIFICATION AND SUPERPOSITION PRINCIPLES FOR NONLINEAR OPERATORS.
(AFOSR-65-1712)
AD-624 248 FLD. 12/1

• • •

TR-8
AUTOMATIC ADJUSTMENT IN A CONTINUOUSENVIRONMENT, (AFOSR-65-2283)
AD-629 948 FLD. 9/2

• • •

P-209
DECOUPLING ESTIMATES FOR UNDERGROUNDEXPLOSIONS.
AD-629 715 FLD. 19/4

•INSTITUTE FOR DEFENSE ANALYSES ARLINGTON VA WEAPONS SYSTEMS EVALUATION DIV

• • •

RP-P-199
MAGNITUDE AND DISTRIBUTION OF WEAPONEFFECTS FOR THE DESIGN OF SHELTERS FORPROTECTION AGAINST FALLOUT.
AD-629 370 FLD. 13/13

•INSTITUTE FOR PERCEPTION RVO-TNO SOESTERBERG (NETHERLANDS)

• • •

CORTICAL CONTROL OF EYE MOVEMENTS ANDVISUAL THRESHOLD.
AD-629 790 FLD. 6/16

•INSTITUTE OF NAVAL STUDIES CAMBRIDGE MASS

• • •

INS-RESEARCH-CONTRIBUTION-7
ECONOMIC CONSIDERATIONS IN ESTABLISHING ANOVERHAUL CYCLE FOR SHIPS: AN EMPIRICALANALYSIS,
AD-629 789 FLD. 13/10

• • •

INS-RESEARCH-CONTRIBUTION-10
ON MEASURING THE VALUE OF INFORMATION,WITH IMPLICATIONS FOR COMMUNICATIONS SYSTEMS,
AD-629 785 FLD. 9/4

• • •

INS-RESEARCH-CONTRIBUTION-13
PREDICTION OF REENLISTMENT USING REGRESSIONESTIMATION OF EVENT PROBABILITIES (REEP).
AD-629 786 FLD. 5/9

•INTERLABORATORY COMMITTEE ON EDITING AND PUBLISHING CORONA CALIF

• • •

ILCEP-MONOGRAPH-2
TECHNICAL REPORTS FOR QUICK READERCOMPREHENSION,
AD-629 948 FLD. 5/2

• • •

ILCEP-MONOGRAPH-8
HIRING THE TECHNICAL EDITOR. THE PROSPECTIVEEMPLOYER'S VIEWPOINT,
AD-629 949 FLD. 5/9

•INTERNATIONAL RECTIFIER CORP LOS ANGELES CALIF

• • •

PRODUCTION ENGINEERING MEASURE. HIGHVOLTAGE SILICON RECTIFIER STACKS.
AD-629 583 FLD. 9/1

•INTERNATIONAL RESISTANCE CO PHILADELPHIA PA DOCUMENTED RELIABILITY DIV

• • •

PRODUCTION ENGINEERING MEASURES FOR HIGHRELIABILITY, FIXED, FILM, PRECISION RESISTORS.
AD-629 936 FLD. 9/1

•IOWA UNIV IOWA CITY DEPT OF PHYSICS AND ASTRONOMY

• • •

IU-65-35
ON THE LOW LATITUDE 'NEGATIVE BAYS' IN THEAFTERNOON SECTOR.
AD-629 507 FLD. 8/14

•ITT DATA AND INFORMATION SYSTEMS DIV PARAMUS N J

• • •

STUDY OF PROGRAMMING DOCUMENTATION STANDARDS AND SPECIFICATIONS.
AD-629 521 FLD. 9/2

•JIKEI UNIV TOKYO (JAPAN) SCHOOL OF MEDICINE

• • •

J-162
GENETIC ANALYSIS OF MICROORGANISM BY MIXEDINFECTION OF ACTIVE PHAGE PARTICLES ANDPHAGE OR BACTERIAL DNA.
AD-629 749 FLD. 6/13

•JOHNS HOPKINS UNIV BALTIMORE MD

• • •

THE B-70, A CHAPTER IN DEFENSE POLICY.
AD-629 679 FLD. 15/3

•JOHNS HOPKINS UNIV BALTIMORE MD DEPT OF CHEMISTRY

• • •

FAR-INFRARED SPECTRUM OF TETRAHYDROFURAN:SPECTROSCOPIC EVIDENCE FOR PSEUDOROTATION, (AFOSR-65-1644)
AD-629 492 FLD. 7/3

•JOHNS HOPKINS UNIV BALTIMORE MD LAB OF ASTROPHYSICS AND PHYSICAL METEOROLOGY

• • •

MOISTURE CONTAMINATION AT ALTITUDE BYBALLOON AND ASSOCIATED EQUIPMENT,
AD-629 711 FLD. 4/1

•JOHNS HOPKINS UNIV SILVER SPRING MD APPLIED PHYSICS LAB

• • •

MICROELECTRONIC ENGINEERING, VOLUME I.FABRICATION TECHNOLOGY, (NAVWEPS-16-1-533)
AD-629 318 FLD. 9/1

• • •

TG-903
STUDIES ON DOPPLER RESIDUALS-I: DEPENDENCEON SATELLITE ORBIT ERROR AND STATION POSITION ERROR,
AD-629 476 FLD. 22/3

• • •

TG-917
A PASSIVE SYSTEM FOR DETERMINING THEATTITUDE OF A SATELLITE,
AD-629 479 FLD. 22/1

• • •

TG-920
NON-ZONAL HARMONIC COEFFICIENTS OF THEGEOPOTENTIAL FROM SATELLITE DOPPLER DATA,
AD-629 478 FLD. 8/4

•KANSAS UNIV LAWRENCE CHEMICAL LAB

• • •

THE PREPARATION AND INFRARED EXAMINATIONOF THE 2-,3-, AND 4-CYANOPYRIDINE COMPLEXESOF COPPER(I), SILVER(I), AND GOLD(I) PERCHLORATES, (AFOSR-65-1656)
AD-629 326 FLD. 7/2

•KANSAS UNIV LAWRENCE DEPT OF CHEMISTRY

• • •

NUMERICAL SOLUTIONS OF THE PERCUS-YEVICKEQUATION FOR THE HARD-SPHERE POTENTIAL, (AFOSR-65-1659)
AD-629 327 FLD. 20/4

• • •

RADIAL DISTRIBUTION FUNCTIONS FOR MIXTURESOF HARD SPHERES, (AFOSR-65-1658)
AD-629 328 FLD. 20/4

•LAMONT GEOLOGICAL OBSERVATORY PALISADES N Y

• • •

SUPPORT OF VISITING SEISMOLOGISTS.
AD-629 493 FLD. 8/11

• • •

LGO-839
AN APPROXIMATE METHOD OF ESTIMATING SHEARVELOCITY FROM SPECIFIC HEAT,
AD-629 493 FLD. 8/7

•LEHIGH UNIV BETHLEHEM PA INST OF RESEARCH

• • •

STUDY OF THE EFFECT OF SOLIDIFICATIONSTRUCTURES ON THE STRENGTH OF METALS.
AD-629 772 FLD. 11/6

• • •

SOLID STATE RESEARCH. (ESD-TDR-65-318)
AD-629 611 FLD. 20/11

• • •

JA-2904
SIMULATION OF RADAR BACKSCATTERING IN ARIPPLE TANK. (ESD-TDR-65-498)
AD-629 733 FLD. 20/14

• • •

JA-2930
PREPARATION AND PARAMAGNETISM OF THE RAREEARTH TRIFLUORIDES, (ESD-TDR-65-548)
AD-629 722 FLD. 7/2

• • •

JA-2947
SCATTERING OF SHORT PULSES OF ELECTROMAGNETIC WAVES. (ESD-TDR-65-500)
AD-629 732 FLD. 20/14

• • •

JA-2973
RADIO ECHO OBSERVATIONS OF VENUS ANDMERCURY AT 23 CM WAVELENGTH, (ESD-TDR-65-545)
AD-629 731 FLD. 3/1

• • •

JA-2996
THE LORENTZ FORCE, (ESD-TDR-65-503)
AD-629 723 FLD. 20/3

• • •

RR-65-8
ELECTRODEPOSITED MAGNETIC FILM DEVELOPMENT. (ESD-TDR-65-450)
AD-629 530 FLD. 9/1

• • •

TN-1965-42
THE DATA RECOVERY CENTER TARGET SIMULATOR. (ESD-TDR-65-445)
AD-629 362 FLD. 9/2

• • •

TN-1965-48
LES-4 SPIN AXIS ORIENTATION SYSTEM. (ESD-TDR-65-460)
AD-629 358 FLD. 22/2

• • •

TN-1965-53
GRADIENT MATRICES AND MATRIX CALCULATIONS. (ESD-TDR-65-554)
AD-629 426 FLD. 12/1

•LINDE DIV UNION CARBIDE CORP INDIANAPOLIS IND

• • •

YAG CRYSTALS.
AD-629 596 FLD. 20/2

• • •

SRCR-65-9
SYMMETRICAL LASER CRYSTALS.
AD-629 514 FLD. 20/5

•LINDEN LABS INC STATE COLLEGE PA

• • •

MACHINING HIGH PURITY ALUMINA.
AD-624 484 FLD. 13/8

•LITTLE (ARTHUR D) INC CAMBRIDGE MASS
• • •
65318
TEMPERATURE DEPENDENCE OF THE INFRAREDSPECTRA OF SELECTED DIELECTRICS.
(AFCRL-65-252)
AD-624 846 FLD. 11/7
• • •
TR-16
THE EFFECT OF ELECTROLYTE ADDITION ON THEVISCOSITY OF WATER UNDER PRESSURE.
AD-624 291 FLD. 7/4
• • •
TR-17
THE ARRHENIUS ACTIVATION ENERGY OFELECTRICAL CONDUCTANCE IN H2O AND D2O.
AD-624 292 FLD. 7/4

•LITTON SYSTEMS INC WALTHAM MASS
• • •
MICROELECTRONIC POWER SUPPLIES.
AD-624 838 FLD. 10/2

•LIVINGSTON ELECTRONIC CORP MONTGOMERYVILLE PA
• • •
LIQUID AMMONIA BATTERIES.
AD-624 589 FLD. 10/3

•LOCKHEED MISSILES AND SPACE CO PALO ALTO CALIF
• • •
LMSD-503445
A SIMPLIFIED METHOD OF PRELIMINARY DESIGNDRAG ESTIMATES FOR BALLISTIC MISSILES.
AD-624 321 FLD. 16/2
• • •
TM-57-11-06
A SIMPLIFIED METHOD OF PRELIMINARY DESIGNDRAG ESTIMATES FOR BALLISTIC MISSILES.
AD-624 321 FLD. 16/2

•LOCKHEED MISSILES AND SPACE CO SUNNYVALE CALIF
• • •
BUCKLING STRENGTH OF CURVED BERYLLIUMPANELS IN COMPRESSION,
AD-624 644 FLD. 20/11
• • •
LMSD-422121
PARAMETRIC PRESENTATION OF COVERAGE DATAFOR POLAR VEHICLES,
AD-624 632 FLD. 22/3
• • •
ER-6959-4
EVALUATION OF AIRCRAFT EXPERIMENTALFASTENERS.
AD-624 539 FLD. 11/6

•LONG BEACH STATE COLL CALIF DEPT OF BIOLOGY
• • •
BENTHIC POLYCHAETOUS ANNELIDS FROM BERING,CHUKCHI, AND BEAUFORT SEAS.
AD-624 922 FLD. 6/3

•LOUISVILLE UNIV KY PERFORMANCE RESEARCH LAB
• • •
ELECTRIC SPARK STIMULATION OF THE SKIN.
AD-624 848 FLD. 5/10

•LYMAN LAB OF PHYSICS HARVARD UNIV CAMBRIDGE MASS
• • •
STUDY OF COLLISION NARROWING BY COMPARISONOF MOLECULAR-BEAM AND GAS-PHASE NUCLEARRESONANCE SPECTRA,
AD-624 517 FLD. 7/4

•MALLORY (P R) AND CO INC INDIANAPOLIS IND
• • •
PRODUCTION ENGINEERING MEASURE FOR IMPROVED RELIABILITY OF SOLID ELECTROLYTETANTALUM CAPACITORS.
AD-624 748 FLD. 9/1

•MARYLAND UNIV COLLEGE PARK DEPT OF PHYSICS AND ASTRONOMY
• • •
EXPERIMENTAL PROGRAM.
AD-624 789 FLD. 20/9

•MARYLAND UNIV COLLEGE PARK INST FOR FLUID DYNAMICS AND APPLIED MATHEMATICS
• • •
BN-425
DENATURATION AND RENATURATION OF DNA:I. EQUILIBRIUM STATISTICS OF COPOLYMERICDNA.
AD-624 491 FLD. 6/1
• • •
TN-BN-423
ON THE DEFINITION OF STATES IN QUANTUMSTATISTICAL MECHANICS.
AD-624 816 FLD. 20/10

•MASSACHUSETTS EYE AND EAR INFIRMARY BOSTON OPHTHALMIC PLASTICS LAB
• • •
HYDROGELS FROM 2-HYDROXYETHYL METHACRYLATE AND PROPYLENE GLYCOL MONOACRYLATE,
AD-624 480 FLD. 11/9
• • •
GRAFT COPOLYMERIZATION OF VINYLPYRROLIDONEONTO POLYDIMETHYLSILOXANE,
AD-624 482 FLD. 11/9
• • •
USES OF PLASTICS IN OPHTHALMOLOGY,
AD-624 502 FLD. 6/5
• • •
PERMEABILITIES OF POLYMERS AND THEIR MEDICALAPPLICATIONS: CORNEAL POLYMER IMPLANTS,
AD-624 503 FLD. 6/5
• • •
STERILIZATION OF POLYMERS,
AD-624 504 FLD. 6/12

•MASSACHUSETTS INST OF TECH CAMBRIDGE
• • •
A STUDY OF AXISYMMETRIC TRANSONIC FLOWUSING THE METHOD OF PARAMETRIC DIFFERENTIATION.
AD-624 683 FLD. 20/4
• • •
A RADIOISOTOPIC POWER SUPPLY FOR THE SUNBLAZER SPACE PROBE.
AD-624 684 FLD. 18/14
• • •
TWIST BUCKLING OF COIL SPRINGS OF VARIOUSWIRE CROSS SECTIONS.
AD-624 686 FLD. 20/11
• • •
OPTICAL AND ELECTRO-OPTICAL INFORMATIONPROCESSING,
AD-624 812 FLD. 9/2
• • •
MECHANISMS OF COMBUSTION INSTABILITY,
(AFOSR-65-2206)
AD-624 834 FLD. 21/2

•MASSACHUSETTS INST OF TECH CAMBRIDGE AEROELASTIC AND STRUCTURES RESEARCH LAB
• • •
MIT-ASRL-TR-132-1
THE INTERIOR ELASTIC STRESS FIELD IN A CONTINUOUS, CLOSE-PACKED FILAMENTARYCOMPOSITE MATERIAL UNDER UNIAXIAL TENSION,
(AFOSR-65-1426)
AD-624 572 FLD. 11/4

•MASSACHUSETTS INST OF TECH CAMBRIDGE AEROPHYSICS LAB
• • •
MIT-DSR-9170
RADIATION COUPLED WEDGE FLOW USING METHODOF INTEGRAL RELATIONS,
(AFOSR-65-1727)
AD-624 594 FLD. 20/4
• • •
TR-112
RADIATION COUPLED WEDGE FLOW USING METHODOF INTEGRAL RELATIONS,
(AFOSR-65-1727)
AD-624 594 FLD. 20/4

•MASSACHUSETTS INST OF TECH CAMBRIDGE DEPT OF ELECTRICAL ENGINEERING
• • •
INVESTIGATION OF GERMANIUM DIODES FORTHERMO-PHOTOVOLTAIC ENERGY CONVERTORS.
AD-624 313 FLD. 10/1

•MASSACHUSETTS INST OF TECH CAMBRIDGE DEPT OF NAVAL ARCHITECTURE AND MARINE ENGINEERING
• • •
MIT-DNA-65-13
COMPLIANT WATER WAVE ABSORBERS.
AD-624 508 FLD. 13/10
• • •
ESL-R-238
ON THE MEASUREMENT OF RANDOMLY TIMEVARYING LINEAR SYSTEMS,
AD-624 693 FLD. 9/4

•MASSACHUSETTS INST OF TECH CAMBRIDGE METAL WORKING SECTION
• • •
DEVELOPMENT OF A METHOD FOR EVALUATINGLUBRICANTS FOR COLD WORKING METALS.
(WAL-TR-364/65)
AD-624 451 FLD. 11/8

•MASSACHUSETTS INST OF TECH CAMBRIDGE OPERATIONS RESEARCH CENTER
• • •
TR-16
ON SOME ASPECTS OF INTEGER LINEARPROGRAMMING,
(AROD-968.41)
AD-624 593 FLD. 12/2

•MASSACHUSETTS UNIV AMHERST POLYMER RESEARCH INST
• • •
DYNAMIC BIREFRINGENCE AND MECHANICALLOSS SPECTRA OF CRYSTALLINE POLYMERS,
(AROD-4091:11)
AD-624 382 FLD. 11/9

•MCGILL UNIV MONTREAL (QUEBEC) DEPT OF CHEMISTRY
• • •
PARTICLE MOTIONS IN SHEARED SUSPENSIONS.XVI. ORIENTATIONS OF RODS AND DISKS INHYPERBOLIC AND OTHER FLOWS,
AD-624 243 FLD. 7/4
• • •
OPTICAL INTERFERENCE IN CURVED SOAP FILMS.
AD-624 404 FLD. 7/4

•MCMASTER UNIV HAMILTON (ONTARIO) DEPT OF CHEMISTRY
• • •
NUCLEAR MAGNETIC RESONANCE SPECTROSCOPY OFSOME SELENIUM COMPOUNDS,
(AFOSR-65-1670)
AD-624 331 FLD. 7/4

•MELLON INST PITTSBURGH PA
• • •
SF4 AND SOF2: INFRARED EVIDENCE FOR DIMERFORMATION AT LOW TEMPERATURES,
(AROD-5272:1)
AD-624 402 FLD. 7/2

•METCALF CHEMICAL LABS BROWN UNIV PROVIDENCE R I
• • •
X-RAY STUDIES OF SIMPLE CRYSTALS.
AD-629 939 FLD. 20/2

•METEOROLOGICAL AND GEOASTROPHYSICAL ABSTRACTS WASHINGTON D C
• • •
OCEANOGRAPHY CONTRIBUTION-2 BIBLIOGRAPHY ON PHYSICAL OCEANOGRAPHY OFTHE INDIAN OCEAN.
AD-629 966 FLD. 8/10

•MIAMI UNIV OXFORD OHIO
• • •
GROUP PERFORMANCE AS A FUNCTION OF SIZE,STRUCTURE, AND TASK DIFFICULTY,
(AMRL-TR-65-190)
AD-629 922 FLD. 5/10

•MICHIGAN UNIV ANN ARBOR
• • •
MINIMUM FUEL ANALYSIS OF A LUNAR SOFTLANDING MISSION USING FEEDBACK CONTROL.
AD-629 681 FLD. 22/3

•MICHIGAN UNIV ANN ARBOR DEPT OF PHYSICS
• • •
03106-21-T
THE USE OF COSMIC RAYS TO STUDY PHYSICS INTHE RANGE 100-1000 GEV.
AD-629 918 FLD. 20/8

•MICROWAVE LAB STANFORD UNIV CALIF
• • •
ML-1372
MICROWAVE RESEARCH.
AD-629 967 FLD. 20/9

•MICROWAVE PHYSICS CORP GARLAND TEX
• • •
WIDEBAND ELECTRONICALLY TUNABLE FILTERSFOR VHF-UHF BAND.
(RADC-TR-65-286)
AD-629 960 FLD. 9/1

•MINNESOTA UNIV MINNEAPOLIS DEPT OF CHEMISTRY
• • •
REVIEW OF FUNDAMENTALS OF POLAROGRAPHYIN INERT ORGANIC SOLVENTS,
(AFOSR-65-1692)
AD-629 930 FLD. 7/4

•MINNESOTA UNIV MINNEAPOLIS DEPT OF MICROBIOLOGY
• • •
THE LIFE-CYCLE OF AN ACTINOPHAGE FORSTREPTOMYCES VENEZUELAE,
AD-629 923 FLD. 6/13

•MITRE CORP BEDFORD MASS
• • •
ON MAPPINGS FOR MODULAR ARITHMETIC, II.
(ESD-TDR-64-199)
AD-629 989 FLD. 9/2

•MITRE CORP BEDFORD MASS COMPUTER AND DISPLAY DEVELOPMENT DEPT
• • •
USING AN ANALOG COMPUTER TO ANALYZETRANSISTOR CIRCUIT PERFORMANCE,
(ESD-TDR-63-170)
AD-629 990 FLD. 9/1

•MOLECULAR PSYCHOBIOLOGY LAB YORK UNIV TORONTO (ONTARIO)
• • •
MPL-1
THE EFFECTS OF AUDITORY STIMULATION ANDMOTOR ACTIVITY ON NUCLEIC ACIDS AND PROTEINS,
AD-629 528 FLD. 5/10
• • •
MPL-2
THE EFFECTS OF CHEMICAL STIMULATION ANDLEARNING ON NUCLEIC ACIDS AND PROTEINS.
AD-629 705 FLD. 5/10

•MSA RESEARCH CORP CALLERY PA
• • •
MSAR-64-123
POTASSIUM SUPEROXIDE ATMOSPHERE CONTROLUNIT.
(AMRL-TR-65-44)
AD-629 556 FLD. 6/11

•NARA MEDICAL COLL KASHIHARA CITY (JAPAN) DEPT OF PHYSIOLOGY
• • •
J-207
STUDIES ON THE HEMOGLOBIN-OXYGENEQUILIBRIUM.
AD-629 740 FLD. 6/16

•NATIONAL BUREAU OF STANDARDS BOULDER COLO
• • •
FIELD STRENGTH MEASUREMENTS, PHASE II.
(RADC-TR-65-279)
AD-629 590 FLD. 14/2

•NATIONAL ELECTROTECHNICAL INST TURIN (ITALY)
• • •
TN-6
SELF MODULATING DERIVATIVE OPTICALSPECTROSCOPY. PART 2: EXPERIMENTAL.
(AFOSR-65-2304)
AD-629 765 FLD. 20/6

•NAVAL AIR DEVELOPMENT CENTER JOHNSVILLE PA AEROSPACE MEDICAL RESEARCH DEPT
• • •
NADC-MR-6509
A SHORT-CUT SOLUTION FOR THE KOLMOGOROVSMIRNOV TEST.
AD-629 529 FLD. 12/1

•NAVAL AIR DEVELOPMENT CENTER JOHNSVILLE PA AERO-ELECTRONIC TECHNOLOGY DEPT
• • •
NADC-AE-6509
AN INTRODUCTORY THEORETICAL STUDY OFCONSTANT PERMEABILITY MAGNETIC SHIELDING.
AD-629 312 FLD. 20/3

•NAVAL AIR DEVELOPMENT CENTER JOHNSVILLE PA AVIATION MEDICAL ACCELERATION LAB
• • •
NADC-ML-6505
METHODOLOGICAL PROBLEMS OF THE PSYCHOPHYSICAL METHODS OF LIMITS AND CONSTANTSTIMULI.
AD-629 492 FLD. 5/10
• • •
TR-R-406
DYNAMIC COMPRESSION TESTS ON THIN-SECTIONREINFORCED CONCRETE.
AD-629 770 FLD. 13/3
• • •
TR-R-416
ELECTROMAGNETIC SHIELDING EFFECTIVENESSMEASUREMENTS USING LOW CONDUCTIVITY CLOSEDSURFACES.
AD-629 708 FLD. 9/1
• • •
TR-R-423
POTENTIOSTATIC CORROSION STUDIES OF IRON,TYPE-304 AND TYPE-321 STAINLESS STEEL.
AD-629 269 FLD. 11/6
• • •
TR-R-431
PROTECTION OF MOORING BUOYS. PART VII.RESULTS OF SIXTH RATING INSPECTION.
AD-629 799 FLD. 13/10

•NAVAL ENGINEERING EXPERIMENT STATION ANNAPOLIS MD
• • •
EES-9E(1)66909
MAGNETIC CHARACTERISTICS OF 'NON-MAGNETIC'MATERIALS PERMEABILITY AND COERCIVE FORCEIN STRONG FIELDS 100-200 OERSTEDS,
AD-629 284 FLD. 11/6
• • •
EES-9P(1)66918
MAGNETIC CHARACTERISTICS OF 'NON-MAGNETIC'MATERIALS PERMEABILITY AND COERCIVE FORCEIN STRONG FIELDS 100-200 OERSTEDS,
AD-629 284 FLD. 11/6

•NAVAL MEDICAL FIELD RESEARCH LAB CAMP LEJEUNE N C
• • •
THE EFFECTS OF TWO TYPES OF BODY ARMOR ONBODY TEMPERATURE.
AD-629 738 FLD. 19/4

•NAVAL MEDICAL RESEARCH UNIT NO 2 TAIPEI (TAIWAN)
• • •
SUMMARIES OF RESEARCH,
AD-629 930 FLD. 6/5
• • •
AMMONIUM TOXICITY, A POTENTIAL ARTIFACT INPREPARATION OF TOXINS.
AD-629 629 FLD. 6/13
• • •
INFORMAL-M-4-65
PROTON MAGNETOMETER TEST ON BOARD A SURVEYAIRCRAFT,
AD-629 281 FLD. 8/14

•NAVAL OCEANOGRAPHIC OFFICE WASHINGTON D C
• • •
TRANS-278
SEA SNAKES,
(TT-65-64772)
AD-629 690 FLD. 8
• • •
REVIEW OF RECENTLY DEVELOPED LIQUIDAMMONIA BATTERIES,
AD-629 768 FLD. 10/3
• • •
CHEMOELECTRIC ENERGY CONVERSION FOR NONAQUEOUS RESERVE BATTERIES.
(NAVWEPS-8832)
AD-629 811 FLD. 10/3
• • •
NOLTR-65-60
THE TUNNEL JUNCTION NEURISTOR.
AD-629 590 FLD. 9/1

•NAVAL ORDNANCE LAB WHITE OAK MD UNDERWATER EXPLOSIONS DIV
• • •
DEVELOPMENT OF PROBES FOR MEASURING THEMAXIMUM RADIUS OF UNDERWATER EXPLOSIONBUBBLES,
AD-629 910 FLD. 14/2
• • •
NOLTR-65-146
THE RESISTANCE OF HOLLOW GLASS MODELS TOUNDERWATER EXPLOSIONS AT GREAT DEPTHS. II.SPECIAL CONFIGURATIONS,
AD-629 998 FLD. 19/4

•NAVAL ORDNANCE PLANT YORK PA
• • •
NOTS-TP-3917
OFFSHORE GRAVITY AND MAGNETIC ANOMALIESIN THE SANTA BARBARA CHANNEL, CALIFORNIA.
(NAVWEPS-8961)
AD-629 700 FLD. 8/4
• • •
NOTS-TP-2692-REV-2
INSTRUMENT OPERATIONS ON SYSTEMSDEVELOPMENT DEPARTMENT RANGES.

AD-624 311 FLD. 14/2

• • •

NOTS-TP-3988
INVERSE MAGNETOSTRICTIVE EFFECT OFULTRASONIC STRESS WAVES IN STEEL. (NAVWEPS-9009)
AD-624 691 FLD. 11/6

•NAVAL PERSONNEL RESEARCH ACTIVITY SAN DIEGO CALIF

• • •

SRR-65-8
ABSTRACTS OF TECHNICAL REPORTS, JULY 1964JUNE 1965.
AD-624 576 FLD. 5/9

• • •

SRR-66-6
PROJECT COMPASS: A COMPUTER ASSISTEDCLASSIFICATION SYSTEM FOR NAVY ENLISTED MEN.
AD-624 428 FLD. 5/9

• • •

SRR-66-8
THE RELATIONSHIP OF OCS GRADES TO OFFICERFITNESS REPORT MARKS.
AD-624 609 FLD. 5/9

• • •

STB-66-13
AN INVESTIGATION OF THE UTILITY OF A CONVERSIONCHART AS A JOB AID FOR ELECTRONICS TECHNICIANS.
AD-624 608 FLD. 5/9

• • •

USNRDL-TR-916
GAMMA RAYS FROM (N, N'GAMMA RAYS) INTERACTIONSOF 2.8 MEV NEUTRONS WITH MAGNESIUM, ALUMINUM,SILICON, TITANIUM AND IRON,
AD-624 497 FLD. 20/8

• • •

USNRDL-TR-920
HOMOGRAFT RESPONSE AND HEMAGGLUTININPRODUCTION BY SENSITIZED THYMECTOMIZEDIRRADIATED ADULT MICE,
AD-624 485 FLD. 6/18

•NAVAL RESEARCH LAB WASHINGTON D C

• • •

NRL-1655
MEASUREMENTS ON ONE AND TWO LINES OFFREE-FLOODED MAGNETOSTRICTIVE RINGTRANSDUCERS,
AD-624 709 FLD. 20/1

• • •

NRL-1658
THE ROLE OF INDUCTANCE IN SUPERCONDUCTINGENERGY STORAGE CIRCUITS.
AD-624 707 FLD. 20/3

• • •

NRL-6319
ANALYSIS OF FRICTION TORQUE IN SIMPLE ANDPRELOADED SPUR GEAR TRAINS.
AD-624 591 FLD. 13/9

• • •

NRL-6321
DIRECTIONAL EQUILIBRIUM OF AN ARTIFICIALSATELLITE ENVELOPING A NONUNIFORM REGIONOF A GRAVITATIONAL FIELD.
AD-624 592 FLD. 22/2

• • •

NRL-6323
HUMAN VS FILTER AS DATA EXTRAPOLATOR INA TWO-COORDINATE, SAMPLED-DATA TRACKINGSYSTEM.
AD-624 499 FLD. 9/8

• • •

NRL-6324
SURFACE CHEMISTRY OF FLUOROCHEMICALS.
AD-624 610 FLD. 7/4

• • •

NRL-6325
ADSORPTION OF SURFACE-ACTIVE MATERIAL ATTHE SURFACE OF SEA-WATER SAMPLES FROM THEBAY OF PANAMA.
AD-624 429 FLD. 8/10

• • •

NRL-6326
AN ACOUSTIC RAY SHIP POSITIONING ANDTRACKING SYSTEM.
AD-624 454 FLD. 17/7

• • •

NRL-6328
PHOTODEGRADATION OF HIGH POLYMERS INSOLUTION. PART II. SOLVENT EFFECTS IN THEPHOTOLYSIS OF POLYSTYRENE.
AD-624 593 FLD. 8/1

• • •

NRL-6329
FACTORS AFFECTING THE ICING RESISTANCE OFLUBRICANTS FOR AIRCRAFT ORDNANCE.
AD-624 594 FLD. 11/8

• • •

NRL-6331
THE EFFECT OF LIGHT INTENSITY AND THICKNESSOF CULTURE SOLUTION ON OXYGEN PRODUCTIONBY ALGAE.
AD-624 532 FLD. 6/11

• • •

NRL-6332
A METHOD FOR THE DETERMINATION OF STRONGACID VAPORS IN THE PPM RANGE.
AD-624 296 FLD. 7/2

• • •

NRL-6334
SURFACE CHEMICAL METHODS OF DISPLACINGWATER AND/OR OILS AND SALVAGING FLOODEDEQUIPMENT. PART V. FIELD EXPERIENCE INREMOVING SEA-WATER SALT RESIDUES, SAND, DUST,AND SOLUBLE CORROSIVE PRODUCTS FROM AN/FPS16(XN-1) MISSILE- AND SATELLITE-TRACKING RADAR.
AD-624 293 FLD. 13/8

• • •

NRL-6339
PHOTODEGRADATION OF HIGH POLYMERS. PARTVII - PHOTOLYSIS OF POLY(N-BUTYL METHACRYLATE)IN VACUUM,
AD-624 303 FLD. 8/1

• • •

NRL-6352
AN ATLAS OF THE ABSORPTION OF THE ATMOSPHEREFROM 8512 TO 11, 600A.
AD-624 323 FLD. 4/1

• • •

NRL-6363
CHARACTERISTIC DYNAMIC STRENGTH RATIO ASTHE LIMITING PARAMETER IN SHOCK DESIGN,
AD-624 438 FLD. 13/13

•NAVAL SCHOOL OF AVIATION MEDICINE PENSACOLA FLA

• • •

A STUDY OF SOME DETERMINERS OF PSYCHOLOGICALSTRESS.
AD-624 450 FLD. 5/10

• • •

A COMPARISON OF EFFECTIVENESS OF SOMEANTIMOTION SICKNESS DRUGS USING RECOMMENDEDAND LARGER THAN RECOMMENDED DOSES ASTESTED IN THE SLOW ROTATION ROOM,
AD-624 526 FLD. 6/15

• • •

NSAM-926
THE EFFECTS OF ENVIRONMENTAL TEMPERATURECHANGES ON THE EKG OF THE SQUIRREL MONKEY(SAIMIRI SCIUREUS),
(NAVMED-MR009.13-9010-502)
AD-624 527 FLD. 6/6

• • •

STUDIES OF CILIARY MUCUS TRANSPORT IN ACLOSED CABIN ATMOSPHERE.
AD-624 754 FLD. 6/11

• • •

FREQUENCY-RESPONSE CHARACTERISTICS OF ANIMPROVED TRANSISTORIZED MILITARIZED INTERCOMSYSTEM PROPOSED BY THE USN UNDERWATER SOUNDLABORATORY FOR USE IN MAINTENANCE AND TESTINGOF THE AN/BQS-6 SONAR SYSTEM.
AD-624 795 FLD. 17/2

• • •

NOISE SURVEY OF ENGINE ROOMS OF U.S.S. TRINGA.
AD-624 766 FLD. 6/19

• • •

VISUAL REQUIREMENT FAILURE BY CANDIDATESREPORTING FOR BASIC SUBMARINE TRAINING DURING1964.
AD-624 781 FLD. 5/9

• • •

SELECTION OF MEN FOR HAZARDOUS DUTY FROMINDICES OF INDIVIDUAL DIFFERENCES INAUTONOMIC NERVOUS SYSTEM REACTIVITY.
AD-624 783 FLD. 6/19

• • •

EFFECTS OF THE CUBAN CRISIS UPON ATTITUDESRELATED TO WAR AND PEACE.
AD-624 793 FLD. 5/10

• • •

65-9
AUDITORY FATIGUE UNDERWATER AT 1900 CYCLESPER SECOND.
(NAVMED-MR004-19-1200-03)
AD-624 753 FLD. 6/19

•NAVAL SUBMARINE MEDICAL CENTER GROTON CONN MEDICAL RESEARCH LAB

• • •

CURRENT PROBLEMS IN ENLISTED SUBMARINEPHYSICAL EXAMINATIONS,
AD-624 779 FLD. 5/9

• • •

DEEP FREEZE '61 DENTAL OFFICER'S REPORT,
AD-624 780 FLD. 5/9

• • •

BEKESY AUDIOMETRY AT 20 FREQUENCIES FROM0.2 TO 6 KC/SEC,
AD-624 782 FLD. 6/16

•NAVAL TRAINING DEVICE CENTER PORT WASHINGTON N Y

• • •

NAVTRADEVCEN-IH-33
DETECTION IN A HOMOGENOUS VISUAL FIELDUNDER A CONDITION OF INFINITE DEPTH OF FOCUS,
AD-624 521 FLD. 5/9

• • •

NRL-1999
ATMOSPHERIC CONVECTION PRODUCED BY LOCALHEATING OR COOLING OF A HORIZONTAL SURFACE,
AD-624 774 FLD. 4/2

• • •

NRL-2003
ACOUSTIC SPREADING LOSS IN AN INHOMOGENEOUSMEDIUM,
AD-624 459 FLD. 20/1

• • •

TM-M-20/65
THE PRESENT STATE OF THE NRL RF DISCHARGEINVESTIGATION.
AD-624 455 FLD. 19/1

•NEBRASKA UNIV LINCOLN ELECTRICAL MATERIALS LAB

• • •

ERROR IN DIELECTRIC-FILM ELLIPSOMETERDETERMINATIONS DUE TO NEGLECT OF FILMABSORPTION,
AD-624 341 FLD. 20/6

•NEW HAMPSHIRE UNIV DURHAM

• • •

THE EFFECTS OF CYCLIC STRESSING ONPREFERRED ORIENTATION OF POLYCRYSTALLINEALUMINUM.
AD-624 691 FLD. 11/6

• • •

INVESTIGATION AND ANALYSIS OF THE PERFORMANCECHARACTERISTICS AND FLOW CIRCULATION IN ATEST MODEL REGENERATIVE PUMP.

AD-629 652 FLD. 13/11

• • •

THE DESIGN OF AN IMPROVED RECEIVER FORROCKET EXPERIMENTS.
AD-629 659 FLD. 17/2

•NEW HAMPSHIRE UNIV DURHAM DEPT OR MECHANICAL ENGINEERING

• • •

EFFECT OF GEOMETRY ON LOCAL CONVECTIVECOEFFICIENTS FOR AN UNBAFFLED CIRCULAR FINASSEMBLY.
AD-629 646 FLD. 20/13

• • •

A PRELIMINARY INVESTIGATION OF A METHOD FORDEFINING MECHANICAL PROPERTIES OF CELLS ANDTISSUE.
AD-629 647 FLD. 6/16

• • •

A METHOD OF MONITORING THE CARDIACBEHAVIOR OF PHOLIS GUNNELLUS (LINNAEUS).
AD-629 649 FLD. 6/3

•NEW MEXICO UNIV ALBUQUERQUE

• • •

A STATISTICAL STUDY OF THE DERAILMENTHAZARD FOR U. S. CLASS I RAILWAYS.
AD-629 675 FLD. 12/2

•NEW YORK NAVAL SHIPYARD BROOKLYN DESIGN DIV

• • •

NOISE-291-11
USS OGDEN (LPD-5). NOISE LEVEL SURVEY SHIP'SSPACES.
AD-629 283 FLD. 13/10

•NEWCASTLE-UPON-TYNE UNIV (ENGLAND) DEPT OF INORGANIC CHEMISTRY

• • •

HALOGEN DERIVATIVES OF CO-ORDINATEDGALLIUM HYDRIDE.
(AFOSR-65-1695)
AD-629 372 FLD. 7/2

•NORAIR DIV NORTHROP CORP HAWTHORNE CALIF

• • •

NOR-65-98(BLC-161)
INVESTIGATION OF METHODS FOR RE-ESTABLISHMENT OF A LAMINAR BOUNDARY LAYER FROMTURBULENT FLOW.
AD-629 488 FLD. 20/4

• • •

NOR-65-271
A SOURCE DISTRIBUTION TECHNIQUE FOR THESOLUTION OF GENERAL ELECTROMAGNETICSCATTERING PROBLEMS. PHASE I REPORT.
AD-629 586 FLD. 17/9

•NORTH AMERICAN AVIATION INC COLUMBUS OHIO

• • •

EVALUATION OF AN IMAGE QUALITYENHANCEMENT TECHNIQUE.
(AMRL-TR-65-193)
AD-629 470 FLD. 14/5

• • •

NA65H-913
TIME, UNCERTAINTY, AND INCENTIVE VARIABLESIN COMPOSITE TASK PERFORMANCE.
AD-629 830 FLD. 5/8

•NORTH CAROLINA UNIV CHAPEL HILL DEPT OF ENVIRONMENTAL SCIENCES AND ENGINEERING

• • •

NUTRITIONAL REQUIREMENTS OF ENTEROTOXIGENICSTRAINS OF STAPHYLOCOCCUS AUREUS.
AD-629 249 FLD. 6/13

•NORTHWESTERN UNIV EVANSTON ILL

• • •

RESPONSE OF A CYLINDRICAL SHELL TO AN ELASTICWAVE.
(AROD-4950:3)
AD-629 367 FLD. 20/11

•NORTHWESTERN UNIV EVANSTON ILL DEPT OF ELECTRICAL ENGINEERING

• • •

CUT-SET MATRICES AND LINEAR CODES.
(AROD-3298:21)
AD-629 380 FLD. 9/9

•NORTHWESTERN UNIV EVANSTON ILL DEPT OF GEOGRAPHY

• • •

TRANSPORTATION FORECAST AND PREDICTIONSTUDY.
AD-629 285 FLD. 15/5

•NORTHWESTERN UNIV EVANSTON ILL MATERIALS RESEARCH CENTER

• • •

MATERIALS RESEARCH CENTER SIXTH ANNUALREPORT, 1 FEBRUARY 1965 TO 30 SEPTEMBER 1965.
AD-629 427 FLD. 11/7

•NORTHWESTERN UNIV EVANSTON ILL STRUCTURAL MECHANICS LAB

• • •

TR-65-3
THICKNESS SHEAR VIBRATIONS OF AN ABLATINGROCKET.
AD-629 737 FLD. 21/8.2

•OBERLIN COLL OHIO DEPT OF CHEMISTRY

• • •

VAPORIZATION CATALYSIS. THE DECOMPOSITIONOF GALLIUM NITRIDE.
(AROD-3952:3)
AD-629 384 FLD. 7/4

•OFFICE OF NAVAL RESEARCH WASHINGTON D C

• • •

NAVAL RESEARCH LOGISTICS QUARTERLY,VOLUME 12, NO. 1.
AD-629 756 FLD. 15/5

•OFFICE OF THE CHIEF OF RESEARCH AND DEVELOPMENT (ARMY) WASHINGTON D C

• • •

PRINCIPAL ADDRESSES OF THE 1965 U. S. ARMYNATIONAL JUNIOR SCIENCE AND HUMANITIESSYMPOSIUM, 29-30 APRIL 1965.
AD-629 282 FLD. 5/1

•OHIO STATE UNIV COLUMBUS

• • •

FRANKLIN D. ROOSEVELT AND THE DEVELOPMENTOF AN AMERICAN OCCUPATION POLICY IN EUROPE.
AD-629 656 FLD. 5/4

• • •

THE MECHANISM OF THE TRITIUM BETA-RAYINDUCED EXCHANGE REACTIONS OF DEUTERIUMWITH METHANE AND ETHANE IN THE GAS PHASE.
AD-629 657 FLD. 8/1

•OHIO STATE UNIV RESEARCH FOUNDATION COLUMBUS

• • •

PROPERTIES OF SOLIDS AT LOW TEMPERATURES.
AD-629 829 FLD. 20/12

• • •

OSURF-104
PREDICTING THE INTELLIGIBILITY OF WORDS III.
AD-629 296 FLD. 5/10

• • •

SIB POLYMER DEVELOPMENT.
AD-629 599 FLD. 11/10

•ORDNANCE AEROPHYSICS LAB GENERAL DYNAMICS/DAINGERFIELD TEX

• • •

CM-1036-1
MACH NUMBER TABLES (GAMMA = 1.4) WITHCORRECTION FACTORS FOR REAL AIR.
AD-629 598 FLD. 20/4

• • •

OAL-147-1
MACH NUMBER TABLES (GAMMA = 1.4) WITHCORRECTION FACTORS FOR REAL AIR.
AD-629 598 FLD. 20/4

• • •

FURTHER STUDIES ON THE HUMAN ECCRINE SWEATGLAND.
AD-629 409 FLD. 6/16

•OSLO UNIV (NORWAY) INST FOR THEORETICAL PHYSICS

• • •

26
PERTURBATION THEORY EXPANSIONS THROUGH21ST ORDER OF THE NON-RELATIVISTIC ENERGIESOF THE TWO-ELECTRON SYSTEMS(2P)23P AND (1S)21S.
(AFOSR-65-1662)
AD-629 378 FLD. 7/4

•PARIS UNIV (FRANCE) LABORATOIRE DE PSYCHOLOGIE SOCIALE

• • •

L'APPROCHE CLINIQUE ET EXPERIMENTALE DE LAGENESE DES NORMES CONTRACTUELLES DANSDIFFERENTES CONDITIONS DE CONFLIT ET DEMENACE (CLINICAL AND EXPERIMENTAL APPROACH TO THEORIGIN OF CONTRACTUAL NORMS UNDER DIFFERENT CONDITIONSOF CONFLICT AND THREAT).
AD-629 717 FLD. 5/10

•PENNSYLVANIA STATE UNIV UNIVERSITY PARK DEPT OF ENGINEERING MECHANICS

• • •

TRANSIENT ANALYSIS OF OBLIQUE IMPACT ONPLATES.
(AROD-3842:5)
AD-629 379 FLD. 20/11

•PENNSYLVANIA STATE UNIV UNIVERSITY PARK IONOSPHERE RESEARCH LAB

• • •

SCIENTIFIC-262
INVESTIGATION OF PROBLEMS ENCOUNTERED INWAVE INTERACTION EXPERIMENTS AT HIGH POWER.
AD-629 847 FLD. 20/14

• • •

SR-250
THE MEASUREMENT OF PHASE AND AMPLITUDERADIO WAVE INTERACTION AT UNIVERSITY PARK,PENNSYLVANIA, FOR APRIL-MAY-JUNE, 1965.
(AFCRL-65-778)
AD-629 393 FLD. 4/1

• • •

SR-252
DETERMINATION OF IONOSPHERIC LOSS COEFFICIENTS FROM OBSERVATIONS ON SATELLITE X-RAYFLUXES AND SUDDEN IONOSPHERIC DISTURBANCES.
(AFCRL-65-779)
AD-629 392 FLD. 4/1

• • •

SR-253
MORPHOLOGY OF HIGH LATITUDE GEOMAGNETICDISTURBANCE AND CORRELATIONS WITH SATELLITEMAGNETIC FIELD MEASUREMENTS.
(AFCRL-65-780)
AD-629 319 FLD. 8/14

•PENNSYLVANIA STATE UNIV UNIVERSITY PARK ORDNANCE RESEARCH LAB

• • •

MONOPULSE RADAR TRACKING TECHNIQUES.
AD-629 630 FLD. 17/9

•PENNSYLVANIA UNIV PHILADELPHIA DEPT OF BIOCHEMISTRY

• • •

REFRACTORY HEMOLYTIC DISEASE ASSOCIATED WITHGLUCOSE-6-PHOSPHATE

DEHYDROGENASEDEFICIENCY AND HEMOSIDEROSIS: REPORT OF ACASE.
AD-624 345 FLD. 6/5

•PENNSYLVANIA UNIV PHILADELPHIA DEPT OF PHYSICS
• • •
TR-25
THE PRESENT STATUS OF THE TEMPERATUREDEPENDENCE OF MAGNETOCYRSTALLINE ANISOTROPY,AND THE L(L+1)/2 POWER LAW.
AD-624 718 FLD. 20/3
• • •
TR-26
RARE-EARTH-IRON EXCHANGE INTERACTION IN THEGARNETS. II-EXCHANGE POTENTIAL FOR YTTERBIUM.
AD-624 719 FLD. 7/4
• • •
TR-27
A WICK'S THEOREM FOR SPIN OPERATORS, WITHAN APPLICATION TO SPIN WAVES IN ANTIFERROMAGNETS.
AD-624 720 FLD. 20/3
• • •
TR-28
THERMODYNAMIC PROPERTIES OF SPIN IMPURITIESIN HEISENBERG FERROMAGNETS.
AD-624 721 FLD. 20/3

•PENNSYLVANIA UNIV PHILADELPHIA DEPT OF PHYSIOLOGY
• • •
VENTILATION OF PARTS OF THE LUNG WITHCHEMICALS AND GASES IN AQUEOUS SOLUTION.
AD-624 757 FLD. 6/16

•PERKIN-ELMER CORP NORWALK CONN ELECTRO-OPTICAL DIV
• • •
PE-TR-8110
CRYSTALS FOR OPTICAL MASER APPLICATIONS.
AD-624 558 FLD. 20/5
• • •
PE-TR-8186
CONTINUOUS-WAVE STIMULATED RAMANEMISSION.
AD-624 301 FLD. 20/6
• • •
TM-1662
THE APPLICATION OF DEFENSE VALUEENGINEERING.
AD-624 810 FLD. 14/1

•PITMAN-DUNN RESEARCH LABS FRANKFORD ARSENAL PHILADELPHIA PA
• • •
A65-8
FLUORINATED NITROGEN HETEROCYCLES VIACYCLIZATION. I. TRIFLUOROMETHYL-2-PYRIDONESFROM FLUORINATED 1,3-DICARBONYLS ANDCYANOACETAMIDE.
AD-624 694 FLD. 7/3
• • •
A65-9
A SURVEY OF SOME OF THE RECENT APPLICATIONSOF PYROTECHNICS TO SMALL ARMS AMMUNITIONAND MILD DETONATING FUSE SYSTEMS.
AD-624 607 FLD. 19/1

•PITTSBURGH UNIV PA
• • •
AN ANALYSIS OF THE SELECTION OF CANDIDATESFOR SALES ENGINEERING POSITIONS.
AD-624 645 FLD. 5/9
• • •
THE OMBUDSMAN CONCEPT AS REFLECTED IN THEINSPECTORS GENERAL, UNITED STATES ARMY ANDAIR FORCE.
AD-624 648 FLD. 5/4
• • •
A MATHEMATICAL DECISION MAKING APPROACH TOTHE CONTROL OF INTERNATIONAL CONFLICT.
AD-624 690 FLD. 5/4
• • •
PROPOSALS FOR AN ALL REGULAR OFFICER FORCEAS AN AID TO PROCUREMENT AND RETENTION OFQUALIFIED PERSONNEL IN THE UNITED STATES AIRFORCE CAREER OFFICER CORPS.
AD-624 693 FLD. 5/9

•PLANNING RESEARCH CORP LOS ANGELES CALIF
• • •
PRC-R-254
AN ANALYSIS OF THE INVENTORY RANGE PROBLEM.
AD-624 252 FLD. 15/5

•POLYTECHNIC INST OF BROOKLYN N Y DEPT OF AEROSPACE ENGINEERING AND APPLIED MECHANICS
• • •
PIBAL-868
AN EXPERIMENTAL STUDY OF THE TURBULENTMIXING OF A SUBSONIC AND A SUPERSONIC JET INA CLOSED DUCT, (AFOSR-65-1794)
AD-624 551 FLD. 20/4

•POLYTECHNIC INST OF BROOKLYN N Y MICROWAVE RESEARCH INST
• • •
M-66
A SIMPLE APPROACH TO THE ZERO-CROSSINGPROBLEM. (AFOSR-65-1723)
AD-624 265 FLD. 12/1
• • •
PIBMRI-1194-63
A SIMPLE APPROACH TO THE ZERO-CROSSINGPROBLEM. (AFOSR-65-1723)
AD-624 265 FLD. 12/1
• • •
PIBMRI-1203-64
EXPANSION OF A NON-PERIODIC PROCESS X(T) INTOA FOURIER SERIES WITH UNCORRELATED COEFFICIENTS, (AFOSR-65-1724)
AD-624 266 FLD. 12/1
• • •
PIBMRI-1205-64
ERGODICITY OF THE DISTRIBUTION FUNCTION OFA STATIONERY PROCESS, (AFOSR-65-1725)
AD-624 307 FLD. 12/1
• • •
PIBMRI-1272-65
INVESTIGATIONS ON THE GUIDING, SCATTERING,AND RADIATION OF ELECTROMAGNETIC WAVES. (AFCRL-65-537)
AD-624 843 FLD. 20/14
• • •
PIBMRI-1278-65
JOINT SERVICES ELECTRONICS PROGRAM. (AFOSR-65-1493)
AD-624 297 FLD. 9/1

•POULTER LABS STANFORD RESEARCH INST MENLO PARK CALIF
• • •
SHOCK INITIATION OF LOW-DENSITY PRESSINGS OFAMMONIUM PERCHLORATE, (AFOSR-65-2261)
AD-624 537 FLD. 19/1

•PRINCETON UNIV N J
• • •
RESEARCH ON DIELECTRIC PROPERTIES AND THESTRUCTURE OF MATTER.
AD-624 434 FLD. 7/4
• • •
ELECTRICAL POWER SYSTEMS FOR THE MANNEDORBITING LABORATORY.
AD-624 668 FLD. 22/2

•PRINCETON UNIV N J DEPT OF CHEMISTRY
• • •
A STUDY OF THE KINETICS AND MECHANISM OFELECTROLYTIC FILM FORMATION REACTIONS. (AFOSR-65-1560)
AD-624 264 FLD. 7/4

•PRINCETON UNIV N J ECONOMETRIC RESEARCH PROGRAM
• • •
RM-79
NONLINEAR SIMULTANEOUS EQUATIONS: ESTIMATION AND PREDICTION.
AD-624 254 FLD. 9/3

•PURDUE UNIV LAFAYETTE IND DEPT OF CHEMISTRY
• • •
RESEARCH IN NITROMONOMERS AND THEIRAPPLICATION TO SOLID SMOKELESS PROPELLANTS.
AD-624 300 FLD. 21/9.2

•PURDUE UNIV LAFAYETTE IND SCHOOL OF ELECTRICAL ENGINEERING
• • •
TR-EE-65-9
SPEECH ANALYSIS. (AFCRL-65-681)
AD-624 559 FLD. 9/7

•QUEEN'S UNIV BELFAST (NORTHERN IRELAND) DEPT OF APPLIED MATHEMATICS
• • •
THE IONIZATION OF INERT GAS ATOMS BYELECTRON AND PROTON IMPACT AT HIGH ENERGIES.
AD-624 277 FLD. 20/8
• • •
EXCITATION OF NEUTRAL ATOMS BY ELECTRONIMPACT.
AD-624 278 FLD. 20/8

•RADIATION EFFECTS INFORMATION CENTER COLUMBUS OHIO
• • •
RADIATION EFFECTS INFORMATION CENTERMONTHLY ACCESSION LIST. COORDINATE INDEX,PART II, OCTOBER 1, 1965 TO NOVEMBER 30, 1965.
AD-624 787 FLD. 18/8
• • •
REICAL-93
RADIATION EFFECTS INFORMATION CENTER MONTHLYACCESSION LIST, ABSTRACT NO. 29825 TO 29878, PARTI, NOVEMBER 1, 1965 TO NOVEMBER 30, 1965.
AD-624 788 FLD. 18/8

•RADIATION INC MELBOURNE FLA ANTENNA AND MICROWAVE ENGINEERING SECTION
• • •
8
STUDY OF SPECIAL BEAMSHAPING ANTENNAS.
AD-624 603 FLD. 9/5

•RADIO CORP OF AMERICA CAMDEN N J COMMUNICATIONS SYSTEMS DIV
• • •
1000F
DESIGN, DEVELOPMENT, AND FABRICATION OFTHE HIGH-FREQUENCY SINGLE-SIDEBAND TRANSCEIVER AN/ARC-109(V).
AD-624 697 FLD. 17/2.1
• • •
CR-65-591-7
DESIGN, DEVELOPMENT, AND FABRICATION OFTHE HIGH-FREQUENCY SINGLE-SIDEBAND TRANSCEIVER AN/ARC-109(V).
AD-624 697 FLD. 17/2.1

•RADIO CORP OF AMERICA HARRISON N J ELECTRONIC COMPONENTS AND DEVICES
• • •
DEVELOPMENT OF TRANSISTOR-

VARACTOR DIODECAPABLE OF 5 WATTS OUTPUT AT 2.3 GIGACYCLES.
AD-629 566 FLD. 9/1

•RADIO CORP OF AMERICA HARRISON N J MICROWAVE TUBE OPERATIONS DEPT
• • •
A LOW-NOISE, MULTIPLE-FUNCTION, X-BANDTRAVELING-WAVE TUBE.
AD-629 911 FLD. 9/1

•RAND CORP SANTA MONICA CALIF
• • •
A COMPLETE CONSTRUCTIVE ALGORITHM FOR THEGENERAL MIXED LINEAR PROGRAMMING PROBLEM,
AD-629 676 FLD. 12/2
• • •
P-3235
COMMUNICATIONS, COMPUTERS AND PEOPLE,
AD-629 931 FLD. 9/2
• • •
P-3246
SOME THOUGHTS ON RANGE PLANNING ANDOPERATION,
AD-629 929 FLD. 22/4
• • •
P-3255
THE INDIAN ECONOMY AND DEFENSE,
AD-629 775 FLD. 5/3
• • •
P-3257
MARKOV RENEWAL PROGRAMMING BY LINEARFRACTIONAL PROGRAMMING,
AD-629 929 FLD. 12/2
• • •
P-3258
SOVIET MILITARY THEORY: AN ADDITIONALSOURCE OF INSIGHT INTO ITS DEVELOPMENT,
(TT-65-64796)
AD-629 797 FLD. 15/7
• • •
P-3261
LANCHESTER MODELS FOR PHASE II INSURGENCY,
AD-629 957 FLD. 15/7
• • •
P-3270
A SURVEY OF MAGNETIC STORMS,
AD-629 776 FLD. 8/14
• • •
P-3271
THE MINUTEMAN MISSILE SYSTEM,
AD-629 961 FLD. 16/4
• • •
P-3273
A MODEST PROPOSAL: OR TECHNICAL ASSISTANCEIN REVERSE,
AD-629 960 FLD. 5/4
• • •
P-3274
COST/BENEFIT ANALYSIS IN HEALTH,
AD-629 778 FLD. 14/1
• • •
P-3275
RADIATIVE TRANSPORT AND THE CALCULUS OFVARIATIONS. I: THE INVARIANT VARIATIONALPRINCIPLE AND NORMAL INITIAL AND BOUNDARYDATA,
AD-629 777 FLD. 12/1
• • •
P-3276
A PROBLEM EMANATING FROM A STUDY OFFEEDBACK LOOPS IN STOCHASTIC NETWORKS,
AD-629 817 FLD. 12/1
• • •
RM-4269-PR(SUPPL)
SOVIET TRANSPORT AND COMMUNICATIONS:OUTPUT INDEXES, 1928-1962,
AD-629 818 FLD. 5/3
• • •
RM-4560-PR
THE IMPACT OF THE HIGH DEVELOPMENT COSTOF ADVANCED FLIGHT PROPULSION SYSTEMS ONDEVELOPMENT POLICY,
AD-629 856 FLD. 5/1
• • •
RM-4571-PR
NOTES ON N-PERSON GAMES VII. CORES OF CONVEXGAMES,
AD-629 910 FLD. 12/2
• • •
RM-4623-PR
FARM EMPLOYMENT IN THE SOVIET UNION,1928-1963,
AD-629 699 FLD. 5/3
• • •
RM-4795-PR
A PERTURBATION THEORY FOR NONLINEAR PARTIALDIFFERENTIAL EQUATIONS,
AD-629 808 FLD. 12/1
• • •
RM-4802-PR
A LIMIT THEOREM FOR SUBADDITIVE COLLECTIONSOF SEQUENCES,
AD-629 807 FLD. 12/1
• • •
RM-4808-PR
MILITARY ANALYSIS,
AD-629 963 FLD. 15/7
• • •
RM-4810-PR
SOVIET CYBERNETICS TECHNOLOGY: V. SOVIETPROCESS CONTROL COMPUTERS,
(TT-65-64617)
AD-629 290 FLD. 9/2
• • •
RM-4814-PR
LIN PIAO ON 'PEOPLE'S WAR': CHINA TAKES ASECOND LOOK AT VIETNAM,
AD-629 995 FLD. 15/7
• • •
CRYOELECTRIC RANDOM ACCESS MEMORY, PHASE III.
(RADC-TR-65-405-VOL-1)
AD-629 606 FLD. 9/2
• • •
RMD-5065-Q3
CARBORANE-SILOXANE ELASTOMERS.
AD-629 735 FLD. 11/10
• • •
RSIC-473
LYAPUNOV'S METHOD OF INVESTIGATING THESTABILITY OF MOTION OF RIGID BODIES WITHLIQUID-FILLED CAVITIES,
(TT-65-64794)
AD-629 800 FLD. 20/11
• • •
RSIC-485
DETERMINATION OF CRITICAL HEAT FLOWS DURINGTHE BOILING OF A HIGH-BOILING HEAT TRANSFERAGENT IN PIPES,
(TT-65-64795)
AD-629 801 FLD. 20/13

•RENSSELAER POLYTECHNIC INST TROY N Y DEPT OF CHEMISTRY
• • •
FORMATION OF EXCITED NO AND N2 BY WALLCATALYSIS,
AD-629 802 FLD. 7/4

•REPUBLIC AVIATION CORP FARMINGDALE N Y
• • •
RAC-1787-5FR
THE INFLUENCE OF DIET ON THE NORMAL FECALFLORA OF THE CHIMPANZEE.
(ARL-TR-65-21)
AD-629 612 FLD. 6/3
• • •
RAD-TR-65-24
MEASUREMENT OF THE GRUENEISEN PARAMETERAND THE INTERNAL ENERGY DEPENDENCE OF THESOLID EQUATION OF STATE FOR ALUMINUM ANDTEFLON.
(WL-TR-65-117)
AD-629 320 FLD. 20/13

•RESEARCH LAB OF ELECTRONICS MASS INST OF TECH CAMBRIDGE
• • •
CORRELATION FUNCTIONS IN NUCLEAR RELAXATION1. ANALYSIS OF RANDOM MOTIONS FROM FIELDDEPENDENCE OF RELAXATION TIMES,
AD-629 392 FLD. 7/4
• • •
GLASS-COATED TUNGSTEN MICROELECTRODES,
AD-629 393 FLD. 9/1
• • •
STRONG COUPLING IN NUCLEAR RESONANCE SPECTRA. V. PERTURBATION THEORY FOR THE EXTREMECOUPLING CASE,
AD-629 394 FLD. 7/4
• • •
IMPULSES ORIGINATING IN THE REGION OFDENDRITES,
AD-629 395 FLD. 6/16
• • •
MICROWAVE SCATTERING DUE TO ACOUSTICION-PLASMA-WAVE INSTABILITY,
AD-629 396 FLD. 20/9
• • •
LOW-FREQUENCY INSTABILITY OF PARTIALLYIONIZED PLASMA,
AD-629 397 FLD. 20/9
• • •
STAINING PROPERTIES OF LANTHANUM ON CELLMEMBRANES,
AD-629 620 FLD. 6/3
• • •
CALIBRATION OF ELECTROMAGNETIC FLOWMETERSFOR BLOOD FLOW MEASUREMENT,
AD-629 622 FLD. 6/12
• • •
RESEARCH ON NEW CONCEPTS IN ENERGYCONVERSION.
AD-629 736 FLD. 10/2

•RESEARCH TRIANGLE INST DURHAM N C
• • •
INTEGRATED SILICON DEVICE TECHNOLOGY.VOLUME IX. EPITAXY.
(ASD-TDR-63-316-VOL-9)
AD-629 520 FLD. 9/1

•RESEARCH TRIANGLE INST DURHAM N C OPERATIONS RESEARCH AND ECONOMICS DIV
• • •
R-OU-157
SENSITIVITY ANALYSIS OF CIVIL DEFENSESYSTEMS AND COMPONENTS. A COST-EFFECTIVENESS COMPUTER PROCEDURE FOR OPTIMUM ALLOCATION OF FALLOUT SHELTER SYSTEM FUND UNDERUNIFORM OR VARIABLE RISK ASSUMPTIONS.
AD-629 701 FLD. 15/3
• • •
R-OU-157
A SENSITIVITY ANALYSIS OF SELECTED PARAMETERS BASED ON 8 SMSA'S.
AD-629 702 FLD. 15/3
• • •
R-OU-157
SENSITIVITY ANALYSIS OF CIVIL DEFENSESYSTEMS AND COMPONENTS. A GENERALIZEDSENSITIVITY ANALYSIS OF CD SYSTEMS.
AD-629 703 FLD. 15/3
• • •
R-OU-157
SENSITIVITY ANALYSIS OF CIVIL DEFENSESYSTEMS AND COMPONENTS. INTRODUCTION ANDSUMMARY.
AD-629 704 FLD. 15/3

•RIO GRANDE DO SUL UNIV PORTO ALEGRE (BRAZIL) INSTITUTO DE FISICA•
• • •
APPLICATION OF METHODS COMMON TO ELEMENTARY PARTICLE PHYSICS AND MANY-BODYPROBLEMS.
AD-629 396 FLD. 20/8
• • •

A GENERALIZATION OF THE LANDAU GAUGE,
AD-624 397 FLD. 20/8

• • •

QUANTUM ELECTRODYNAMICS WITH ZERO BAREFERMION MASS,
AD-624 398 FLD. 20/8

• • •

THE LENGTH SCALE IN QUANTUM ELECTRODYNAMICS WITHOUT A BARE MASS,
AD-624 399 FLD. 20/8

• • •

BROKEN SYMMETRIES AND THE ELECTRON-MUONPROBLEM,
AD-624 400 FLD. 20/8

•RITCHIE INC DAYTON OHIO

• • •

INVESTIGATION OF 'PREDICTOR' DISPLAYS FORORBITAL RENDEZVOUS, PROGRAM SUMMARY.
(AMRL-TR-65-138)
AD-624 467 FLD. 22/3

•ROCKETDYNE CANOGA PARK CALIF

• • •

ON THE NATURE OF UREY-BRADLEY FORCECONSTANTS APPLICATION TO FOUR FIRST ROW IONS,
(AFOSR-65-2264)
AD-624 833 FLD. 7/4

•ROME AIR DEVELOPMENT CENTER GRIFFISS AFB N Y SPACE SURVEILLANCE AND INSTRUMENTATION BRANCH

• • •

RADC-TR-65-375
ENVIRONMENTAL CONTROL AND INSTALLATION OFA PRECISION AERIAL CAMERA.
AD-624 742 FLD. 14/5

• • •

RADC-TR-65-228
ELECTRONICALLY STEERABLE ARRAY: CHANGE A.
AD-624 791 FLD. 9/5

• • •

RADC-TR-65-263
NOTES ON CLASSIFICATION CAPACITIES,
AD-624 937 FLD. 9/2

• • •

RADC-TR-65-279
FIELD STRENGTH MEASUREMENTS, PHASE II.
AD-624 550 FLD. 14/2

• • •

RADC-TR-65-283
RADAR SCATTERING FROM SATELLITE WAKES.
AD-624 940 FLD. 17/9

• • •

RADC-TR-65-286
WIDEBAND ELECTRONICALLY TUNABLE FILTERSFOR VHF-UHF BAND.
AD-624 360 FLD. 9/1

• • •

RADC-TR-65-330
RADC RELIABILITY PHYSICS NOTEBOOK,
AD-624 769 FLD. 14/9

• • •

RADC-TR-65-338
A FREQUENCY MEASURING SPECTRUM ANALYZER.
AD-624 698 FLD. 20/6

• • •

RADC-TR-65-366
STUDY OF SOLID-STATE AND TRAVELING-WAVEMASER TECHNIQUES.
AD-624 359 FLD. 20/5

• • •

RADC-TR-65-369
EXCITED STATE SATURABLE ABSORBER FOR1.06 MICRON WAVELENGTH.
AD-624 361 FLD. 20/6

• • •

RADC-TR-65-381
A BEAM-SHIFTING TECHNIQUE FOR SIDE LOBEREDUCTION AND PATTERN SYNTHESIS.
AD-624 605 FLD. 20/14

• • •

RADC-TR-65-395
WIDE BAND CRYOGENIC PARAMETRIC AMPLIFIER.
AD-624 599 FLD. 9/1

• • •

RADC-TR-65-405-VOL-1
CRYOELECTRIC RANDOM ACCESS MEMORY, PHASE III.
AD-624 606 FLD. 9/2

• • •

RADC-TR-65-519
HALF MILLIMETER 'BACKWARD WAVEOSCILLATOR'.
AD-624 695 FLD. 9/1

•ROWLAND AND CO HADDONFIELD N J

• • •

R AND C-65-7-100
HUMAN JUDGMENT AS A FACTOR IN THE GENERATION OF SHIPS' ALLOWANCE LISTS.
AD-624 993 FLD. 15/5

•ROYAL INST OF TECH STOCKHOLM (SWEDEN) DEPT OF INORGANIC CHEMISTRY

• • •

STUDIES ON THE HYDROLYSIS OF METAL IONS.PART 30. THE HYDROLYSIS OF THE YTTRIUM(III) ION,Y(3+),
(AFOSR-65-1648)
AD-624 329 FLD. 7/2

• • •

TECHNIQUES FOR CALORIMETRIC TITRATIONS INTHE SEMI-MICRO RANGE. PART I. APPARATUS. ASENSITIVE, AUTOMATICALLY RECORDING QUASIISOTHERMAL CALORIMETER,
(AFOSR-65-1649)
AD-624 325 FLD. 14/2

•RUTGERS - THE STATE UNIV NEW BRUNSWICK N J SANITARY ENGINEERING LABS

• • •

REACTIONS OF CHLORINE DIOXIDE AND OTHER OXYCHLORO COMPOUNDS WITH ORGANIC COMPOUNDS.KINETICS OF REACTION BETWEEN CHLORINEDIOXIDE AND PHENOL.
AD-624 316 FLD. 7/3

•RUTGERS - THE STATE UNIV NEW BRUNSWICK N J SCHOOL OF CHEMISTRY

• • •

TR-1
INFRARED STUDY OF THE NATURE OF THE HYDROXYLGROUPS ON THE SURFACE OF POROUS VYCOR GLASS.
AD-624 595 FLD. 7/4

• • •

SCIENTIFIC-13
THE DETERMINATION OF CRUSTAL THICKNESSFROM THE SPECTRUM OF P WAVES.
(AFCRL-65-766)
AD-624 849 FLD. 8/7

•SAN ANTONIO AIR MATERIEL AREA KELLY AFB TEX DIRECTORATE OF MAINTENANCE

• • •

THE USE OF STATISTICAL CONTROL CHARTTECHNIQUES IN A SICK LEAVE CONTROL PROGRAM.
AD-624 747 FLD. 5/9

•SCRIPPS INSTITUTION OF OCEANOGRAPHY SAN DIEGO CALIF MARINE PHYSICAL LAB

• • •

MPL-U-49-62
FLIP FLOATING INSTRUMENT PLATFORM,
AD-624 601 FLD. 13/10

• • •

REFERENCE-SIO-65-12
FLIP FLOATING INSTRUMENT PLATFORM,
AD-624 601 FLD. 13/10

•SCRIPPS INSTITUTION OF OCEANOGRAPHY UNIV OF CALIFORNIA LA JOLLA

• • •

AN ASPECT OF EUPHAUSIID ECOLOGY REVEALEDBY ECHO-SOUNDING IN A FJORD,
AD-624 920 FLD. 8

• • •

SIO-REFERENCE-65-17
OCEANIC RESEARCH.
AD-624 826 FLD. 8/10

•SEATO MEDICAL RESEARCH LAB BANGKOK (THAILAND)

• • •

DISTRIBUTION IN ALTITUDE OF MOSQUITOES INNORTHERN THAILAND,
AD-624 261 FLD. 6/3

• • •

RESEARCH ON ANALYSIS OF AMINO ACIDS BY GASCHROMATOGRAPHY.
(AMRL-TR-65-198)
AD-624 969 FLD. 6/1

•SOUTHWEST RESEARCH INST SAN ANTONIO TEX DEPT OF STRUCTURAL RESEARCH

• • •

A STUDY OF THE USAF SCHOOL OF AEROSPACEMEDICINE HUMAN CENTRIFUGE.
AD-624 596 FLD. 14/2

• • •

SSD-TR-65-196
ABSORPTION EDGE SPECTRUM OF SCANDIUM OXIDE,
AD-624 939 FLD. 7/4

•SPRAGUE ELECTRIC CO NORTH ADAMS MASS

• • •

PRODUCTION ENGINEERING MEASURE FORMECHANIZATION OF HIGH RELIABILITY CAPACITORS.
AD-624 915 FLD. 9/1

• • •

MEASUREMENT OF IONOSPHERIC EFFECTS ON CURTSSOUNDER/COMMUNICATIONS TERMINAL SEPARATIONS.
AD-624 293 FLD. 20/14

• • •

NOTES ON CLASSIFICATION CAPACITIES,
(RADC-TR-65-263)
AD-624 937 FLD. 9/2

• • •

CIVIL DEFENSE IN GERMANY,
AD-624 706 FLD. 15/3

• • •

SCIENTIFIC-3
SUBDIRECT DECOMPOSITIONS OF TRANSITIONGRAPHS,
(AFCRL-65-798)
AD-624 577 FLD. 12/2

• • •

SCIENTIFIC-4
SUBDIRECTLY IRREDUCIBLE UNARY ALGEBRAS,
(AFCRL-65-799)
AD-624 578 FLD. 12/2

•STANFORD UNIV CALIF

• • •

THE EFFECTS OF PLASTICITY ON THE BUCKLINGAND POSTBUCKLING OF CIRCULAR CYLINDRICALSHELLS.
AD-624 660 FLD. 20/13

• • •

OPTICAL FLAT PLACEMENT ON ALMOST SPHERICALGYRO ROTORS.
AD-624 661 FLD. 17/7

• • •

THE RESPONSE OF A SIMULATED DETACHEDRETINA TO VARIOUS DYNAMIC FORCES.
AD-624 662 FLD. 6/5

•STANFORD UNIV CALIF DEPT OF AERONAUTICS AND ASTRONAUTICS

• • •

SUDAER-223
ON THE BOUNDED CONTROL OF SOME

UNSTABLEMECHANICAL SYSTEMS,
AD-629 618 FLD. 16/1

• • •

SUDAER-241
THE APPLICATION OF FLOQUET THEORY TO THECOMPUTATION OF SMALL ORBITAL PERTURBATIONSOVER LONG TIME INTERVALS USING THE TSCHAUNERHEMMEL EQUATIONS,
AD-629 659 FLD. 22/3

•STANFORD UNIV CALIF DEPT OF CHEMISTRY

• • •

SECOND AND FOURTH MOMENTS OF CHAIN MOLECULES,
(AFOSR-65-1692)
AD-629 273 FLD. 7/4

• • •

THERMODYNAMIC PROPERTIES OF SOLUTIONS OFHELICAL POLYPEPTIDES,
(AFOSR-65-1691)
AD-629 274 FLD. 7/4

•STANFORD UNIV CALIF DEPT OF MATHEMATICS

• • •

RIEMANN SURFACES WITH THE ABSOLUTE ABMAXIMUM PRINCIPLE,
(AROD-1323:32)
AD-629 399 FLD. 12/1

•STANFORD UNIV CALIF DEPT OF PHYSICS

• • •

ELECTRON SCATTERING EXPERIMENTS;MEASUREMENT OF TRANSMISSION OF 8.2-MEVNEUTRONS PRODUCED BY A VAN DE GRAAFFGENERATOR; MAGNETIZATION CURVE OF HOLMIUM.
AD-629 298 FLD. 20/8

• • •

0 DEGREE YIELD OF GAMMA RAYS IN THE T(P,GAMMA)4 HE REACTION.
(AROD-3269:17)
AD-629 631 FLD. 20/8

•STANFORD UNIV CALIF DEPT OF STATISTICS

• • •

TR-111
FIRST PASSAGE TIMES AND OUTER ANALYSIS OFCONTINUOUS PARAMETER MARKOV CHAINS.
AD-629 498 FLD. 12/1

•STANFORD UNIV CALIF INST FOR MATHEMATICAL STUDIES IN THE SOCIAL SCIENCES

• • •

TR-139
WAGE POLICY AND DISTRIBUTION THEORY.
AD-629 935 FLD. 5/3

•SYLVANIA ELECTRONIC SYSTEMS WILLIAMSVILLE N Y

• • •

ELECTRONICALLY STEERABLE ARRAY: CHANGE A.
(RADC-TR-65-228)
AD-629 791 FLD. 9/5

•SYLVANIA ELECTRONIC SYSTEMS-EAST WALTHAM MASS

• • •

Q763-1
SURFACE WAVE BEHAVIOR IN PHASED ARRAYS.
AD-629 308 FLD. 9/5

•SYRACUSE UNIV N Y

• • •

UNITED NATIONS DISARMAMENT NEGOTIATIONS,1953-1957.
AD-629 666 FLD. 5/4

•SYRACUSE UNIV N Y DEPT OF ELECTRICAL ENGINEERING

• • •

EE-937-6509T13
A BEAM-SHIFTING TECHNIQUE FOR SIDE LOBEREDUCTION AND PATTERN SYNTHESIS.
(RADC-TR-65-381)
AD-629 605 FLD. 20/14

•SYRACUSE UNIV RESEARCH INST N Y DEPT OF CHEMICAL ENGINEERING AND METALLURGY

• • •

MET.E-1241-0965-FR
DEFORMATION CHARACTERISTICS OF METALS ANDALLOYS.
AD-629 267 FLD. 11/6

•SYRACUSE UNIV RESEARCH INST N Y DEPT OF MECHANICAL AND AEROSPACE ENGINEERING

• • •

ME937-6911
INVESTIGATIONS ON REGIONS OF NEGATIVE TURBULENTENERGY-PRODUCTION.
AD-629 302 FLD. 20/4

•SYSTEM RESEARCH LTD RICHMOND (ENGLAND)

• • •

A STUDY OF GROUP DECISION MAKING ANDCOMMUNICATION PATTERNS UNDER CONDITIONSOF STRESS AND OVERLOAD WHEN THE PARTICIPANTSARE PERMITTED TO FUNCTION AS A SELFORGANISING SYSTEM.
AD-629 597 FLD. 5/10

•SYSTEMS INC ORLANDO FLA

• • •

PEM FOR FILTER, QUARTZ CRYSTAL, 112 MC, TYPEEL-FR (X-2) AND CRYSTAL UNIT, FILTER, QUARTZTYPES CR-(XM-69)/U AND CR-(XM-69)/U.
AD-629 309 FLD. 9/1

• • •

PEM FOR FILTER, QUARTZ CRYSTAL, 112 MC,TYPE EL-FR (X-2) AND CRYSTAL UNIT, FILTER,QUARTZ TYPES CR-(XM-69)/U AND CR-(XM-69)/U.
AD-629 692 FLD. 9/5

•SYSTEMS RESEARCH AND DEVELOPMENT SERVICE FEDERAL AVIATION AGENCY WASHINGTON D C

• • •

SRDS-RD-65-73
BIOLOGICAL STUDIES OF THE PROBLEM OFBIRD HAZARD TO AIRCRAFT.
AD-629 464 FLD. 1/2

•TECHNOLOGY INC DAYTON OHIO

• • •

SYSTRAN (SYSTEMS ANALYSIS TRANSLATOR): ADIGITAL COMPUTER PROGRAM.
(AMRL-TR-65-133)
AD-629 468 FLD. 9/2

•TENNESSEE UNIV KNOXVILLE

• • •

A FREDHOLM INTEGRAL EQUATION SOLUTION FORVARIABLE CONDUCTIVITY MAGNETOHYDRODYNAMICCHANNEL FLOW.
AD-629 667 FLD. 20/9

•TEXAS A AND M UNIV COLLEGE STATION

• • •

BILATERAL REPRESENTATION OF THEHORIZONTAL SEMICIRCULAR CANALS IN THE INFERIORVESTIBULAR NUCLEUS OF CATS.
AD-629 663 FLD. 6/16

• • •

MONTE CARLO TECHNIQUES OF SIMULATION APPLIEDTO A SINGLE ITEM INVENTORY SYSTEM.
AD-629 669 FLD. 5/1

• • •

SPACE VARIATIONS IN AXIS HEIGHT OF THE JETSTREAM CORE.
AD-629 665 FLD. 4/2

•TEXAS INSTRUMENTS INC DALLAS SEMICONDUCTOR-COMPONENTS DIV

• • •

TI-03-65-97
LOW-NOISE L-BAND TRANSISTOR AMPLIFIER.
AD-629 619 FLD. 9/5

•TEXAS TECHNOLOGICAL COLL LUBBOCK DEPT OF CHEMISTRY

• • •

THE THERMAL DISSOCIATION OF SOME BIS ANDTETRAKIS (PYRIDINE) METAL COMPLEXES,
(AFOSR-65-1650)
AD-629 332 FLD. 7/2

•TEXAS UNIV AUSTIN

• • •

THE EFFECT OF CONTROLLED ELECTROPHORESISON DEPOSITION OF FLUORIDE ON TOOTH STRUCTURE.
AD-629 680 FLD. 6/5

• • •

STUDIES IN AUTOMATIC LANGUAGE PROCESSING.
(AFCRL-65-680)
AD-629 305 FLD. 5/7

•TOKYO UNIV (JAPAN) DEPT OF PHYSICAL THERAPY AND MEDICINE

• • •

RESPIRATORY DISEASES DUE TO AIR POLLUTION ONTOKYO-YOKOHAMA AREA.
AD-629 741 FLD. 6/5

•TORONTO UNIV (ONTARIO) DEPT OF PHYSIOLOGY

• • •

THE EFFECT OF GLUCAGON ON BLOOD SUGARAND INORGANIC PHOSPHORUS LEVELS IN NORMOTHERMIC AND HYPOTHERMIC RATS.
AD-629 395 FLD. 6/16

•TOWNE SCHOOL OF CIVIL AND MECHANICAL ENGINEERING UNIV OF PENNSYLVANIA PHILADELPHIA

• • •

VISCOELASTIC BEHAVIOR OF HETEROGENEOUSMEDIA,
(AROD-4752:2)
AD-629 403 FLD. 20/11

•TRG INC MELVILLE N Y

• • •

WIDE BAND CRYOGENIC PARAMETRIC AMPLIFIER.
(RADC-TR-65-295)
AD-629 549 FLD. 9/1

•TRW SYSTEMS REDONDO BEACH CALIF PHYSICAL ELECTRONICS LAB

• • •

9436-6002-SU-000
ELECTROFLUID HYPERSONIC RESEARCH.
AD-629 563 FLD. 20/9

• • •

TRWS-PEL-9436-6003-SU-000
ELECTROFLUID HYPERSONIC RESEARCH.
AD-629 564 FLD. 20/9

•TULANE UNIV NEW ORLEANS LA

• • •

IONIC FACTORS IN TOXIC ACTION.
AD-629 552 FLD. 6/15

•TUNG-SOL ELECTRIC INC BLOOMFIELD N J

• • •

DEVELOPMENT OF A HIGH POWERED ELECTRONMULTIPLIER TUBE.
AD-629 538 FLD. 9/1

• • •

EVALUATION OF ELECTRON MULTIPLIER TUBE ANDCIRCUITRY.
AD-629 588 FLD. 9/1

•UNIVERSITY OF SOUTHERN CALIFORNIA LOS ANGELES DEPT OF BIOLOGICAL

SCIENCES
• • •
A COLLECTION OF WHALE-LICE (CYAMIDAE:AMPHIPODA),
AD-624 921 FLD. 6/3

•UNIVERSITY OF SOUTHERN CALIFORNIA LOS ANGELES DEPT OF CHEMISTRY
• • •
A STUDY OF DOUBLE LAYER REPULSION AND VANDER WAALS ATTRACTION IN SOAP FILMS,
(AFOSR-65-1633)
AD-624 280 FLD. 7/4

•UNIVERSITY OF SOUTHERN CALIFORNIA LOS ANGELES SCHOOL OF MEDICINE
• • •
THE EFFECTS OF ELASTICITY UPON THE PRESSURESWITHIN A LIQUID FILLED TUBE WHEN SUBJECTED TOFLUCTUATING FORCES,
AD-624 919 FLD. 6/19

•UNIVERSITY OF WESTERN ONTARIO LONDON DEPT OF CHEMISTRY
• • •
THE PHOTOLYSIS OF SOME ALPHA-SUBSTITUTEDCYCLOHEXANONES,
AD-624 250 FLD. 8/1

•UPPSALA UNIV (SWEDEN)
• • •
NON-NEWTONIAN FLOW OF SOLUTIONS OF HIGHMOLECULAR WEIGHT POLYMER IN EXTREMELYVISCOUS SOLVENTS.
(ML-TR-65-82)
AD-624 712 FLD. 7/4

•UTAH STATE UNIV LOGAN DEPT OF CHEMISTRY
• • •
PYROLYSIS STUDIES. XV. THERMAL RETROGRADEALDOL CONDENSATION OF BETA-HYDROXY KETONES,
(AFOSR-65-1647)
AD-624 374 FLD. 7/4

•UTAH UNIV SALT LAKE CITY
• • •
DETECTION OF AN ENZOOTIC PLAGUE FOCUS BYSEROLOGICAL METHODS,
AD-624 350 FLD. 6/5

•VARIAN ASSOCIATES BEVERLY MASS QUANTUM ELECTRONICS DIV
• • •
CESIUM BEAM TUBE RESEARCH.
AD-624 613 FLD. 9/1

•VICTORIA UNIV WELLINGTON (NEW ZEALAND) DEPT OF CHEMISTRY
• • •
MOSSBAUER STUDIES OF CHEMICAL BONDING,
(AFOSR-65-1651)
AD-624 363 FLD. 8/1

•VICTORY ENGINEERING CORP SPRINGFIELD N J
• • •
THIN FILM THERMISTORS.
AD-624 965 FLD. 9/1

•VIRGINIA UNIV CHARLOTTESVILLE DEPT OF ECONOMICS
• • •
ONR-RM-1
AN ALTERNATIVE INTERPRETATION OF THEPRIMAL-DUAL METHOD AND SOME RELATEDPARAMETRIC METHODS.
AD-624 499 FLD. 12/2
• • •
ONR-RM-2
ON TWO COMMODITY NETWORK FLOWS.
AD-624 500 FLD. 12/2
• • •
ONR-RM-3
FEASIBILITY OF TWO COMMODITY NETWORK FLOWS,
AD-624 501 FLD. 12/2

•WALTER REED ARMY INST OF RESEARCH WASHINGTON D C
• • •
INFERRING A GRAMMAR FROM RESPONSES:DISCUSSION OF GOUGH AND SEGAL'S COMMENT,
AD-624 245 FLD. 5/10
• • •
INTER-PHASE TIME INTERVALS IN SEWARD'SLATENT LEARNING EXPERIMENT,
AD-624 246 FLD. 5/10
• • •
KOREAN HEMORRHAGIC FEVER,
AD-624 247 FLD. 6/5
• • •
SOME EFFECTS OF THE MOSQUITO HOST ONMALARIA PARASITES,
AD-624 248 FLD. 6/3
• • •
INTRAVASCULAR COAGULATION IN IRREVERSIBLESHOCK,
AD-624 263 FLD. 6/5
• • •
INTESTINAL MANIFESTATIONS OF CHOLERA ININFANT RABBITS; A MORPHOLOGIC STUDY,
AD-624 349 FLD. 6/5

•WALTER REED ARMY INST OF RESEARCH WASHINGTON D C DEPT OF EXPERIMENTAL PATHOLOGY
• • •
DEMONSTRATION OF ALKALINE PHOSPHATASE INGROSS SPECIMENS OF SMALL INTESTINE,
AD-624 351 FLD. 6/5

•WALTER REED ARMY INST OF RESEARCH WASHINGTON D C DEPT OF IMMUNOCHEMISTRY
• • •
USE OF HEPARIN IN DISTINGUISHING PLASMAKALLIKREIN FROM PF/DIL,
AD-624 401 FLD. 6/5

•WALTER REED ARMY INST OF RESEARCH WASHINGTON D C DEPT OF METABOLISM
• • •
PERITONEAL FLUID ABSORPTION. I. EFFECT OFDEHYDRATION ON KINETICS,
AD-624 343 FLD. 6/16

•WALTER REED ARMY INST OF RESEARCH WASHINGTON D C DEPT OF SEROLOGY
• • •
THE SERODIAGNOSIS OF EARLY SYPHILIS: HOW TOUTILIZE THE NEWER LABORATORY TESTS,
AD-624 347 FLD. 6/5

•WALTER REED ARMY INST OF RESEARCH WASHINGTON D C DIV OF BASIC SURGICAL RESEARCH
• • •
BILIRUBIN-CARBON-14 METABOLISM IN ISOLATEDINTESTINAL LOOPS,
AD-624 415 FLD. 6/5

•WALTER REED ARMY INST OF RESEARCH WASHINGTON D C DIV OF BIOCHEMISTRY
• • •
THE ATOMIC ABSORPTION SPECTROSCOPY OFCHROMIUM,
AD-624 346 FLD. 7/4
• • •
COULOMETRIC GENERATION OF MOLYBDENUM(V),
AD-624 348 FLD. 7/2

•WALTER REED ARMY INST OF RESEARCH WASHINGTON D C DIV OF COMMUNICABLE DISEASE AND IMMUNOLOGY
• • •
GENETIC MAPPING OF VI AND SOMATIC ANTIGENICDETERMINANTS IN SALMONELLA,
AD-624 483 FLD. 6/13

•WASHINGTON UNIV SEATTLE DEPT OF ATMOSPHERIC SCIENCES
• • •
ATMOSPHERIC, EARTH AND OCEANOGRAPHICRESEARCH.
AD-624 294 FLD. 4/1

•WASHINGTON UNIV ST LOUIS MO
• • •
WATER RECOVERY FROM HUMAN LIQUID WASTESBY DISTILLATION AND CHEMICAL OXIDATION.
AD-624 671 FLD. 13/2

•WATERTOWN ARSENAL LABS MASS
• • •
WAL-TR-764/65
DEVELOPMENT OF A METHOD FOR EVALUATINGLUBRICANTS FOR COLD WORKING METALS.
AD-624 451 FLD. 11/8

•WEATHER BUREAU WASHINGTON D C
• • •
FREQUENCY DISTRIBUTIONS OF UPPER WINDS INTHE GREENLAND AREA.
AD-624 505 FLD. 4/2

•WEATHER BUREAU RESEARCH STATION LAS VEGAS NEV
• • •
WEATHER AND SURFACE RADIATION PREDICTIONACTIVITIES.
(ARPA-VUF-1020)
AD-624 496 FLD. 18/3

•WESTERN DEVELOPMENT LABS PHILCO CORP PALO ALTO CALIF
• • •
WDL-TR-2689
SATELLITE COMMUNICATION CONTROL FACILITY.
AD-624 693 FLD. 17/2.1

•WISCONSIN UNIV MADISON THEORETICAL CHEMISTRY INST
• • •
INTERMOLECULAR FORCES,
AD-624 831 FLD. 7/4

•WOODS HOLE OCEANOGRAPHIC INSTITUTION MASS
• • •
REF-65-44
A COMPILATION OF MOORED CURRENT METEROBSERVATIONS, VOLUME I.
AD-624 815 FLD. 8/3

•YALE UNIV NEW HAVEN CONN
• • •
APPLICATIONS OF THE EXACTLY SOLUBLE ONEDIMENSIONAL MODEL OF TRANSFER REACTIONS,
(AROD-893:10)
AD-624 637 FLD. 20/8
• • •
A SOLUBLE SEMICLASSICAL PARTICLE TRANSFERPROBLEM,
(AROD-893:101)
AD-624 638 FLD. 20/8

•ZIMNEY CORP MONROVIA CALIF.
• • •
HYDRA PROGRAM, A SHORT-RANGE TELEMETERINGROCKET FOR MEASUREMENT OF UNDERWATERNUCLEAR-BURST PLUME RADIATION.
AD-624 857 FLD. 18/9

CONTRACT INDEX

The fields/groups indicated here apply only to the Technical Abstract Bulletin Section (on white paper).

•AD-ARO-49-092-64-G53
RIO GRANDE DO SUL UNIV PORTO ALEGRE (BRAZIL) INSTITUTO DE FISICA•
AD-624 400 FLD. 20/8

•AF04(694)-565
HUGHES AIRCRAFT CO FULLERTON CALIF GROUND SYSTEMS GROUP
HAC-FR-65-10-46
F AD-624 559 FLD. 18/8

•AF04(695)-191
LOCKHEED MISSILES AND SPACE CO SUNNYVALE CALIF
AD-624 649 FLD. 20/11
TDR-669(9230-02)-4 (SSD-TR-65-156)
AD-624 934 FLD. 7/4

•AF19(604)-2205
RENSSELAER POLYTECHNIC INST TROY N Y DEPT OF CHEMISTRY
AD-624 802 FLD. 7/4

•AF19(604)-4962AF-
HARVARD COLL OBSERVATORY CAMBRIDGE MASS SOLAR DEPT
SR-4 (AFCRL-65-723)
AD-624 275 FLD. 3/2
SR-7 (AFCRL-65-807)
AD-624 276 FLD. 7/4
SCIENTIFIC-13 (AFCRL-65-766)
AD-624 849 FLD. 8/7

•AF19(604)-7499
POLYTECHNIC INST OF BROOKLYN N Y MICROWAVE RESEARCH INST
PIBMRI-1272-65 (AFCRL-65-537)
F AD-624 843 FLD. 20/14

•AF19(628)-305
PURDUE UNIV LAFAYETTE IND SCHOOL OF ELECTRICAL ENGINEERING
TR-EE-65-9 (AFCRL-65-681)
F AD-624 555 FLD. 5/7

•AF19(628)-394
FLORIDA STATE UNIV TALLAHASSEE DEPT OF METEOROLOGY
(AFCRL-65-585)
F AD-624 541 FLD. 4/1

•AF19(628)-2498
BROWN UNIV PROVIDENCE R I
SCIENTIFIC-8 (AFCRL-65-722)
AD-624 617 FLD. 9/1

•AF19(628)-2767
LITTLE (ARTHUR D) INC CAMBRIDGE MASS
65318 (AFCRL-65-252)
F AD-624 846 FLD. 11/7

•AF19(628)-3239
EWEN KNIGHT CORP EAST NATICK MASS
SCIENTIFIC-3 (AFCRL-65-820)
AD-624 615 FLD. 22/2

•AF19(628)-3322
HARVARD COLL OBSERVATORY CAMBRIDGE MASS SOLAR DEPT
SR-4 (AFCRL-65-723)
AD-624 275 FLD. 3/2
SR-7 (AFCRL-65-807)
AD-624 276 FLD. 7/4

•AF19(628)-4014 GRANT
PENNSYLVANIA STATE UNIV UNIVERSITY PARK IONOSPHERE RESEARCH LAB
SR-253 (AFCRL-65-780)
AD-624 319 FLD. 8/14
SR-252 (AFCRL-65-779)
AD-624 392 FLD. 4/1
SR-250 (AFCRL-65-778)
AD-624 393 FLD. 4/1

•AF19(628)-4015
THOMAS J WATSON RESEARCH CENTER YORKTOWN HEIGHTS N Y
(AFCRL-65-680)
F AD-624 305 FLD. 5/7

•AF19(628)-5092
STANFORD RESEARCH INST MENLO PARK CALIF
SCIENTIFIC-3 (AFCRL-65-798)
AD-624 577 FLD. 12/2
SCIENTIFIC-4 (AFCRL-65-799)
AD-624 578 FLD. 12/2
TN-1965-48 (ESD-TDR-65-460)
AD-624 398 FLD. 22/2
TN-1965-42 (ESD-TDR-65-445)
AD-624 362 FLD. 9/2
TN-1965-53 (ESD-TDR-65-554)
AD-624 926 FLD. 12/1
RR-65-8 (ESD-TDR-65-450)
F AD-624 530 FLD. 9/1
(ESD-TDR-65-318)
AD-624 611 FLD. 20/11
JA-2530 (ESD-TDR-65-548)
AD-624 722 FLD. 7/2
JA-2596 (ESD-TDR-65-503)
AD-624 723 FLD. 20/3
JA-2573 (ESD-TDR-65-545)
AD-624 731 FLD. 3/1
JA-2547 (ESD-TDR-65-500)
AD-624 732 FLD. 20/14
JA-2504 (ESD-TDR-65-498)
AD-624 733 FLD. 20/14

•AF29(600)-4555
REPUBLIC AVIATION CORP FARMINGDALE N Y
RAC-1787-SFR (ARL-TR-65-21)
F AD-624 612 FLD. 6/3

•AF29(601)-6394
RESEARCH AND ADVANCED DEVELOPMENT DIV AVCO CORP WILMINGTON MASS
RAD-TR-65-24 (WL-TR-65-117)
F AD-624 320 FLD. 20/13

•AF30(602)-2936
NATIONAL BUREAU OF STANDARDS BOULDER COLO
(RADC-TR-65-279)
AD-624 550 FLD. 14/2

•AF30(602)-2989
AIRBORNE INSTRUMENTS LAB DEER PARK N Y
(RADC-TR-65-366)
AD-624 359 FLD. 20/5

•AF30(602)-3041
SYLVANIA ELECTRONIC SYSTEMS WILLIAMSVILLE N Y
(RADC-TR-65-228)
AD-624 791 FLD. 9/5

•AF30(602)-3090
RCA LABS DIV RADIO CORP OF AMERICA PRINCETON N J
(RADC-TR-65-405-VOL-1)
F AD-624 606 FLD. 9/2

•AF30(602)-3282
GEORGIA INST OF TECH ATLANTA ENGINEERING EXPERIMENT STATION
300-A-744 (RADC-TR-65-338)
AD-624 698 FLD. 20/6

•AF30(602)-3418
MICROWAVE PHYSICS CORP GARLAND TEX
(RADC-TR-65-286)
F AD-624 360 FLD. 9/1

•AF30(602)-3448
STANFORD RESEARCH INST MENLO PARK CALIF
(RADC-TR-65-263)
AD-624 437 FLD. 9/2

•AF30(602)-3470
AMERICAN OPTICAL CO SOUTHBRIDGE MASS RESEARCH DIV
(RADC-TR-65-349)
F AD-624 361 FLD. 20/6

•AF30(602)-3504
BATTELLE MEMORIAL INST COLUMBUS OHIO
(RADC-TR-65-330)
AD-624 769 FLD. 14/4

•AF30(602)-3678
COSMIC INC WASHINGTON D C
COSMIC-96 (RADC-TR-65-283)
F AD-624 440 FLD. 17/9

•AF30(602)-3768
TRG INC MELVILLE N Y
(RADC-TR-65-395)
AD-624 549 FLD. 9/1

•AF30(602)-3886
SYLVANIA ELECTRONIC SYSTEMS-EAST WALTHAM MASS
Q763-1
AD-624 308 FLD. 9/5

•AF33(600)-39852
MITRE CORP BEDFORD MASS COMPUTER AND DISPLAY DEVELOPMENT DEPT
(ESD-TDR-63-170)
AD-624 490 FLD. 9/1

•AF33(602)-2696
SYRACUSE UNIV N Y DEPT OF ELECTRICAL ENGINEERING
EE-957-6509T13 (RADC-TR-65-381)
AD-624 605 FLD. 20/14

•AF33(608)-1086
MICHIGAN UNIV ANN ARBOR
AD-624 681 FLD. 22/3

•AF33(608)-1114
STANFORD UNIV CALIF.
AD-624 660 FLD. 20/13

•AF33(608)-1204
ARIZONA UNIV TUCSON
AD-624 685 FLD. 1/3

•AF33(608)-1206
ARKANSAS UNIV FAYETTEVILLE
AD-624 669 FLD. 17/2

•AF33(608)-1207
AUBURN UNIV ALA
AD-624 682 FLD. 9/5

•AF33(608)-1226
DENVER UNIV COLO
AD-624 670 FLD. 5/10

•AF33(608)-1232
GEORGE WASHINGTON UNIV WASHINGTON D C
AD-624 678 FLD. 17/2.1

•AF33(608)-1234
GEORGIA INST OF TECH ATLANTA

AD-629 658 FLD. 9/2
AD-629 659 FLD. 8/13

•AF33(608)-1249
MASSACHUSETTS INST OF TECH CAMBRIDGE
AD-629 683 FLD. 20/9
AD-629 684 FLD. 18/19
AD-629 686 FLD. 20/11

•AF33(608)-1256
NEW HAMPSHIRE UNIV DURHAM
AD-629 651 FLD. 11/6
AD-629 652 FLD. 13/11
AD-629 654 FLD. 17/2
NEW HAMPSHIRE UNIV DURHAM DEPT OF MECHANICAL ENGINEERING
AD-629 647 FLD. 6/16
AD-629 649 FLD. 6/3

•AF33(608)-1262
OHIO STATE UNIV COLUMBUS
AD-629 656 FLD. 5/9
AD-629 657 FLD. 8/1

•AF33(608)-1268
PITTSBURGH UNIV PA
AD-629 645 FLD. 5/9
AD-629 648 FLD. 5/9
AD-629 650 FLD. 5/9
AD-629 653 FLD. 5/9

•AF33(608)-1269
PRINCETON UNIV N J
AD-629 668 FLD. 22/2

•AF33(608)-1278
STANFORD UNIV CALIF
AD-629 661 FLD. 17/7
AD-629 662 FLD. 6/5

•AF33(608)-1278 GRANT
STANFORD UNIV CALIF DEPT OF AERONAUTICS AND ASTRONAUTICS
SUDAER-241
AD-629 655 FLD. 22/3

•AF33(608)-1280
SYRACUSE UNIV N Y
AD-629 666 FLD. 5/9

•AF33(608)-1281
TENNESSEE UNIV KNOXVILLE
AD-629 667 FLD. 20/9

•AF33(608)-1283
TEXAS UNIV AUSTIN
AD-629 680 FLD. 6/5

•AF33(608)-1284
TEXAS A AND M UNIV COLLEGE STATION
AD-629 663 FLD. 6/16
AD-629 664 FLD. 5/1
AD-629 665 FLD. 4/2

•AF33(608)-1292
WASHINGTON UNIV ST LOUIS MO
AD-629 671 FLD. 13/2

•AF33(608)-1300
JOHNS HOPKINS UNIV BALTIMORE MD
AD-629 679 FLD. 15/3

•AF33(615)-1083
RESEARCH LAB OF ELECTRONICS MASS INST OF TECH CAMBRIDGE
AD-629 736 FLD. 10/2

•AF33(615)-1089
RITCHIE INC DAYTON OHIO
(AMRL-TR-65-138)
F AD-629 967 FLD. 22/3

•AF33(615)-1124
RADIATION EFFECTS INFORMATION CENTER COLUMBUS OHIO
REICAL-93
AD-629 788 FLD. 18/8

•AF33(615)-1353
LOCKHEED-GEORGIA CO MARIETTA
ER-6999-4
AD-629 539 FLD. 11/6

•AF33(615)-1518
MSA RESEARCH CORP CALLERY PA
MSAR-64-123
(AMRL-TR-65-44)
F AD-629 536 FLD. 6/11

•AF33(615)-1747
RESEARCH LAB OF ELECTRONICS MASS INST OF TECH CAMBRIDGE
AD-629 620 FLD. 6/3

•AF33(615)-1747D15
RESEARCH LAB OF ELECTRONICS MASS INST OF TECH CAMBRIDGE
AD-629 393 FLD. 9/1
AD-629 395 FLD. 6/16

•AF33(615)-1823
SOUTHWEST RESEARCH INST SAN ANTONIO TEX
(AMRL-TR-65-148)
F AD-629 469 FLD. 6/1

•AF33(615)-1989
ELECTRO-OPTICAL SYSTEMS INC PASADENA CALIF
EOS-9830-M-10
AD-629 545 FLD. 20/12

•AF33(615)-1998
RESEARCH TRIANGLE INST DURHAM N C
(ASD-TDR-63-316-VOL-9)
AD-629 520 FLD. 9/1

•AF33(615)-2118
TRW SYSTEMS REDONDO BEACH CALIF
PHYSICAL ELECTRONICS LAB
9936-6002-SU-000
AD-629 563 FLD. 20/9
TRW-PEL-9936-6003-SU-000
AD-629 564 FLD. 20/9

•AF33(615)-2486
RADIO CORP OF AMERICA HARRISON N J
ELECTRONIC COMPONENTS AND DEVICES
AD-629 566 FLD. 9/1

•AF33(615)-2688
IIT RESEARCH INST CHICAGO ILL
IITRI-U6020-6
AD-629 540 FLD. 21/9.2

•AF33(615)-2884
ELECTRONIC DEFENSE LABS SYLVANIA ELECTRONIC SYSTEMS-WEST MOUNTAIN VIEW CALIF
AD-629 845 FLD. 20/5

•AF33(615)-3166
NORAIR DIV NORTHROP CORP HAWTHORNE CALIF
NOR-65-271
AD-629 586 FLD. 17/9

•AF33(616)-3132
PENNSYLVANIA STATE UNIV UNIVERSITY PARK ORDNANCE RESEARCH LAB
AD-629 630 FLD. 17/9

•AF33(616)-10010
TECHNOLOGY INC DAYTON OHIO
(AMRL-TR-65-133)
AD-629 468 FLD. 9/2

•AF33(657)-8512
COLORADO UNIV BOULDER DEPT OF CHEMICAL ENGINEERING
AD-629 542 FLD. 20/13

•AF33(657)-9514
FROST ENGINEERING DEVELOPMENT CORP DENVER COLO
(AMRL-TR-65-127)
F AD-629 487 FLD. 6/2

•AF33(657)-9686
NORTH AMERICAN AVIATION INC COLUMBUS OHIO
(AMRL-TR-65-143)
F AD-629 470 FLD. 14/3

•AF33(657)-10956
MIAMI UNIV OXFORD OHIO
(AMRL-TR-65-140)
AD-629 322 FLD. 5/10

•AF33(657)-11183
AEROJET-GENERAL NUCLEONICS SAN RAMON CALIF
AN-1259-VOL-2
(APL-TDR-64-124-VOL-2)
A AD-629 486 FLD. 20/9

•AF33(657)-11305
AEROJET-GENERAL CORP DAYTON OHIO
AGC-3024
(AMRL-TR-65-125)
A AD-629 473 FLD. 14/2

•AF33 (608)-1256
NEW HAMPSHIRE UNIV DURHAM DEPT OF MECHANICAL ENGINEERING
AD-629 646 FLD. 20/13

•AF41(609)-2715
SOUTHWEST RESEARCH INST SAN ANTONIO TEX DEPT OF STRUCTURAL RESEARCH
F AD-629 546 FLD. 14/2

•AF41(609)-2730
C G S SCIENTIFIC CORP SOUTHAMPTON PA
F AD-629 587 FLD. 14/2

•AF49(638)-309
UNIVERSITY OF SOUTHERN CALIFORNIA LOS ANGELES DEPT OF CHEMISTRY
(AFOSR-65-1633)
AD-629 280 FLD. 7/4

•AF49(638)-629 GRANT
MASSACHUSETTS INST OF TECH CAMBRIDGE
(AFOSR-65-2206)
AD-629 834 FLD. 21/2
RM-4810-PR
(TT-65-64617)
AD-629 290 FLD. 9/2
RM-4571-PR
AD-629 310 FLD. 12/2
RM-4808-PR
AD-629 463 FLD. 15/7
RM-4814-PR
AD-629 495 FLD. 15/7
RM-4623-PR
AD-629 699 FLD. 5/3
RM-4802-PR
AD-629 807 FLD. 12/1
RM-4795-PR
AD-629 808 FLD. 12/1
RM-4264-PR(SUPPL)
AD-629 818 FLD. 5/3
RM-4560-PR
AD-629 856 FLD. 5/1

•AF49(638)-910
CALIFORNIA INST OF TECH PASADENA SEISMOLOGICAL LAB
(AFOSR-65-2254)
AD-629 547 FLD. 8/11

•AF49(638)-974
FRICK CHEMICAL LAB PRINCETON UNIV N J
(AFOSR-65-1634)
AD-629 279 FLD. 7/4

•AF49(638)-1124
POULTER LABS STANFORD RESEARCH INST MENLO PARK CALIF
(AFOSR-65-2261)
AD-629 537 FLD. 19/1

•AF49(638)-1135
ROCKETDYNE CANOGA PARK CALIF
(AFOSR-65-2264)
AD-629 833 FLD. 7/4

•AF49(638)-1169
ATLANTIC RESEARCH CORP ALEXANDRIA VA KINETICS AND COMBUSTION GROUP
(AFOSR-65-2291)
AD-624 533 FLD. 21/9.2

•AF49(638)-1195
AEROCHEM RESEARCH LABS INC PRINCETON N J
TP-117
AD-624 543 FLD. 7/4

•AF49(638)-1341
STANFORD UNIV CALIF DEPT OF CHEMISTRY
(AFOSR-65-1642)
AD-624 273 FLD. 7/4
(AFOSR-65-1641)
AD-624 274 FLD. 7/4

•AF49(638)-1355
LAMONT GEOLOGICAL OBSERVATORY PALISADES N Y
LGO-839
AD-624 493 FLD. 8/7

•AF49(638)-1362
GENERAL ELECTRIC RESEARCH LAB SCHENECTADY N Y
RES. LAB. REPRINT-5192
(AFOSR-65-1643)
AD-624 287 FLD. 7/4

•AF49(638)-1383DA-
ILLINOIS UNIV URBANA COORDINATED SCIENCE LAB
R-269
AD-624 255 FLD. 9/4

•AF49(638)-1430
JOHNS HOPKINS UNIV BALTIMORE MD DEPT OF CHEMISTRY
(AFOSR-65-1644)
AD-624 492 FLD. 7/3

•AF49(638)-1463
MASSACHUSETTS INST OF TECH CAMBRIDGE AEROELASTIC AND STRUCTURES RESEARCH LAB
MIT-ASRL-TR-132-1
(AFOSR-65-1426)
AD-624 572 FLD. 11/4

•AF61(052)-162 GRANT
ROYAL INST OF TECH STOCKHOLM (SWEDEN) DEPT OF INORGANIC CHEMISTRY
(AFOSR-65-1649)
AD-624 325 FLD. 14/2

•AF61(052)-253
CLEVITE CORP BEDFORD OHIO PIEZOELECTRIC DIV
(AFOSR-65-2242)
AD-624 832 FLD. 6/16

•AF61(052)-392
UPPSALA UNIV (SWEDEN)
(ML-TR-65-82)
5 AD-624 712 FLD. 7/4

•AF61(052)-819
CENTRE DE PHYSIQUE ELECTRONIQUE ET CORPUSCULAIRE ORSAY (FRANCE)
NR-1456
(RADC-TR-65-519)
5 AD-624 695 FLD. 9/1

•AF-AFOSR-1-63
POLYTECHNIC INST OF BROOKLYN N Y DEPT OF AEROSPACE ENGINEERING AND APPLIED MECHANICS
PIBAL-868
(AFOSR-65-1794)
AD-624 551 FLD. 20/4

•AF-AFOSR-7-64
ILLINOIS UNIV URBANA ELECTRICAL ENGINEERING RESEARCH LAB
TR-4
(AFOSR-65-1712)
AD-624 268 FLD. 12/1
TR-8
(AFOSR-65-2283)
AD-624 548 FLD. 9/2

•AF-AFOSR-18-64
ENRICO FERMI INST FOR NUCLEAR STUDIES UNIV OF CHICAGO ILL
(AFOSR-65-1678)
AD-624 318 FLD. 20/8

•AF AFOSR-23-63
TEXAS TECHNOLOGICAL COLL LUBBOCK DEPT OF CHEMISTRY
(AFOSR-65-1650)
AD-624 332 FLD. 7/2

•AF-AFOSR-27-63
VICTORIA UNIV WELLINGTON (NEW ZEALAND) DEPT OF CHEMISTRY
(AFOSR-65-1651)
AD-624 363 FLD. 8/1

•AF AFOSR28-63
MINNESOTA UNIV MINNEAPOLIS DEPT OF CHEMISTRY
(AFOSR-65-1652)
AD-624 330 FLD. 7/4

•AF-AFOSR-34-63
IDAHO UNIV MOSCOW DEPT OF PHYSICAL SCIENCES
(AFOSR-65-1653)
AD-624 369 FLD. 7/3

•AF-AFOSR-62-79
COLORADO UNIV BOULDER DEPT OF CHEMISTRY
(AFOSR-65-1646)
AD-624 373 FLD. 7/3

•AF AFOSR-62-268
UTAH STATE UNIV LOGAN DEPT OF CHEMISTRY
(AFOSR-65-1647)
AD-624 374 FLD. 7/4

•AF-AFOSR-62-303
LAMONT GEOLOGICAL OBSERVATORY PALISADES N Y
F AD-624 493 FLD. 8/11

•AF-AFOSR-62-406
MASSACHUSETTS INST OF TECH CAMBRIDGE AEROPHYSICS LAB
TR-112
(AFOSR-65-1727)
AD-624 554 FLD. 20/4

•AF-AFOSR-98-63
NORTHWESTERN UNIV EVANSTON ILL DEPT OF ELECTRICAL ENGINEERING
(AROD-3298:21)
AD-624 380 FLD. 9/4

•AF AFOSR-139-65
CALIFORNIA UNIV BERKELEY ELECTRONICS RESEARCH LAB
ERL-65-26
AD-624 602 FLD. 20/14

•AF-AFOSR-151-63
PRINCETON UNIV N J DEPT OF CHEMISTRY
(AFOSR-65-1560)
F AD-624 269 FLD. 7/4

•AF-AFOSR-209-63AFOSR
MASSACHUSETTS INST OF TECH CAMBRIDGE
(AFOSR-65-2206)
AD-624 834 FLD. 21/2

•AF-AFOSR-220-63
KANSAS UNIV LAWRENCE CHEMICAL LAB
(AFOSR-65-1656)
AD-624 326 FLD. 7/2

•AF-AFOSR-245-64
CALIFORNIA UNIV LOS ANGELES
(AFOSR-65-1667)
AD-624 365 FLD. 8/1
CALIFORNIA UNIV LOS ANGELES DEPT OF CHEMISTRY
(AFOSR-65-1668)
AD-624 366 FLD. 8/1
(AFOSR-65-1666)
AD-624 368 FLD. 8/1
(AFOSR-65-1665)
AD-624 375 FLD. 20/9
(AFOSR-65-1664)
AD-624 377 FLD. 11/6
CALIFORNIA UNIV LOS ANGELES DEPT OF PHYSICS
(AFOSR-65-1663)
AD-624 376 FLD. 20/12

•AF-AFOSR-376-63
KANSAS UNIV LAWRENCE DEPT OF CHEMISTRY
(AFOSR-65-1659)
AD-624 327 FLD. 20/4
(AFOSR-65-1658)
AD-624 328 FLD. 20/4

•AF-AFOSR-394-64
YALE UNIV NEW HAVEN CONN
(AROD-893:101)
AD-624 638 FLD. 20/8

•AF-AFOSR-399-64
CORNELL UNIV ITHACA N Y GRADUATE SCHOOL OF AEROSPACE ENGINEERING
(AFOSR-65-1768)
AD-624 906 FLD. 20/9

•AF-AFOSR-453-63
POLYTECHNIC INST OF BROOKLYN N Y MICROWAVE RESEARCH INST
PIBMRI-1194-63
(AFOSR-65-1723)
AD-624 265 FLD. 12/1
PIBMRI-1203-64
(AFOSR-65-1724)
AD-624 266 FLD. 12/1
PIBMRI-1278-65
(AFOSR-65-1493)
F AD-624 297 FLD. 9/1
PIBMRI-1205-64
(AFOSR-65-1725)
AD-624 307 FLD. 12/1

•AF-AFOSR-514-64
CALIFORNIA UNIV SAN DIEGO DEPT OF CHEMISTRY
(AFOSR-65-1669)
AD-624 369 FLD. 7/3

•AF-AFOSR-516-64
MCMASTER UNIV HAMILTON (ONTARIO) DEPT OF CHEMISTRY
(AFOSR-65-1670)
AD-624 331 FLD. 7/4

•AF-AFOSR-520-64
CHICAGO UNIV ILL
(AFOSR-65-1042)
AD-624 371 FLD. 12/1

•AF-AFOSR-529-64
BATTELLE MEMORIAL INST COLUMBUS OHIO
(AFOSR-2531)
F AD-624 562 FLD. 20/12

•AF-AFOSR-554-64
CALIFORNIA UNIV BERKELEY DEPT OF CHEMISTRY
(AFOSR-65-1672)
AD-624 329 FLD. 7/3

•AF-AFOSR-614-64
MASSACHUSETTS INST OF TECH CAMBRIDGE AEROPHYSICS LAB
TR-112
(AFOSR-65-1727)
AD-624 554 FLD. 20/4

•AF-AFOSR-624-64
CHICAGO UNIV ILL INST FOR THE STUDY OF METALS
(AFOSR-65-1674)

AD-629 333 FLD. 7/4

•AF-EOAR-8-63
ROYAL INST OF TECH STOCKHOLM (SWEDEN) DEPT OF INORGANIC CHEMISTRY
(AFOSR-65-1699)
AD-629 325 FLD. 14/2

•AF-EOAR-32-64
OSLO UNIV (NORWAY) INST FOR THEORETICAL PHYSICS
26
(AFOSR-65-1662)
AD-629 378 FLD. 7/4

•AF-EOAR-62-27
NEWCASTLE-UPON-TYNE UNIV (ENGLAND) DEPT OF INORGANIC CHEMISTRY
(AFOSR-65-1695)
AD-629 372 FLD. 7/2

•AF-EOAR-63-8
ROYAL INST OF TECH STOCKHOLM (SWEDEN) DEPT OF INORGANIC CHEMISTRY
(AFOSR-65-1698)
AD-629 329 FLD. 7/2

•AF-EOAR-87-63
NATIONAL ELECTROTECHNICAL INST TURIN (ITALY)
TN-6
(AFOSR-65-2304)
AD-629 765 FLD. 20/6

•ARPA ORDER-237
AERONUTRONIC DIV PHILCO CORP NEWPORT BEACH CALIF
PUB. U-3127
AD-629 568 FLD. 3/3

•ARPA ORDER-292
SAINT LOUIS UNIV MO
SCIENTIFIC-13
(AFCRL-65-766)
AD-629 899 FLD. 8/7

•ARPA ORDER-292-62
LAMONT GEOLOGICAL OBSERVATORY PALISADES N Y
F AD-629 953 FLD. 8/11

•ARPA ORDER-306
GPL DIV GENERAL PRECISION INC PLEASANTVILLE N Y
GPL-A-31-2
AD-629 981 FLD. 20/5
PERKIN-ELMER CORP NORWALK CONN ELECTRO-OPTICAL DIV
PE-TR-8186
AD-629 301 FLD. 20/6

•ARPA ORDER-306-62
LINDE DIV UNION CARBIDE CORP INDIANAPOLIS IND
SRCR-65-9
F AD-629 519 FLD. 20/5

•ARPA ORDER-371
ARMY ELECTRONICS COMMAND FORT MONMOUTH N J
AD-629 710 FLD. 17/2.1

•ARPA ORDER-492
IDAHO UNIV MOSCOW
AD-629 691 FLD. 7/2
TN-1965-92
(ESD-TDR-65-995)
AD-629 362 FLD. 9/2

•ARPA ORDER-723
SYLVANIA ELECTRONIC SYSTEMS-EAST WALTHAM MASS
Q763-1
AD-629 308 FLD. 9/5

•AT(29-2)-1163
BEERS (ROLAND F) INC ALEXANDRIA VA
(ARPA-VUF-1026)
F AD-629 922 FLD. 18/3

•AT(30-1)-1892
RESEARCH LAB OF ELECTRONICS MASS INST OF TECH CAMBRIDGE
AD-629 396 FLD. 20/9

•DA-04-200-AMC-791(X)
CALIFORNIA UNIV BERKELEY DEPT OF MECHANICAL ENGINEERING
TS-65-3
AD-629 565 FLD. 21/4

•DA-10-129-AMC-2102(N)
BJORKSTEN RESEARCH FOUNDATION MADISON WIS
AD-629 306 FLD. 6/8

•DA-11-070-AMC-852(W)
REACTION MOTORS DIV THIOKOL CHEMICAL CORP DENVILLE N J
RMD-5065-Q3
AD-629 735 FLD. 11/10

•DA-18-064-AMC-231(A)
DUKE UNIV DURHAM N C
S AD-629 511 FLD. 6/13

•DA-18-108-AMC-143(A)
PENNSYLVANIA UNIV PHILADELPHIA DEPT OF PHYSIOLOGY
AD-629 757 FLD. 6/16

•DA-18-108-AMC-152(A)
TULANE UNIV NEW ORLEANS LA
F AD-629 552 FLD. 6/15

•DA-19-020-ORD-3858
MASSACHUSETTS INST OF TECH CAMBRIDGE METAL WORKING SECTION
(WAL-TR-369/65)
F AD-629 451 FLD. 11/8

•DA-28-017-AMC-1542(A)
LIVINGSTON ELECTRONIC CORP MONTGOMERYVILLE PA
AD-629 589 FLD. 10/3

•DA-28-043-AMC-00064(E)
STANFORD RESEARCH INST MENLO PARK CALIF
F AD-629 253 FLD. 20/14

•DA-28-043-AMC-00073(E)
ILLINOIS UNIV URBANA COORDINATED SCIENCE LAB
R-269
AD-629 255 FLD. 9/4
R-271
AD-629 604 FLD. 20/9
F AD-629 253 FLD. 20/14

•DA-28-043-AMC-00109(E)
TEXAS INSTRUMENTS INC DALLAS SEMICONDUCTOR-COMPONENTS DIV
TI-03-65-97
AD-629 619 FLD. 9/5

•DA-28-043-AMC-00164(E)
IIT RESEARCH INST CHICAGO ILL
IITRI-A6093-12
AD-629 696 FLD. 17/2

•DA-28-043-AMC-00389(S)
RADIATION INC MELBOURNE FLA ANTENNA AND MICROWAVE ENGINEERING SECTION
8
AD-629 603 FLD. 9/5

•DA-28-043-AMC-00418(E)
HUGHES AIRCRAFT CO NEWPORT BEACH CALIF MICROELECTRONICS DIV
AD-629 509 FLD. 18/8

•DA-28-043-AMC-00464(E)
VARIAN ASSOCIATES BEVERLY MASS QUANTUM ELECTRONICS DIV
AD-629 613 FLD. 9/1

•DA-28-043-AMC-00474(E)
PERKIN-ELMER CORP NORWALK CONN ELECTRO-OPTICAL DIV
PE-TR-8110
AD-629 558 FLD. 20/5

•DA-28-043-AMC-01313(E)
HUGHES AIRCRAFT CO FULLERTON CALIF
FR-65-10-182
(ECOM-01313-1)
AD-629 561 FLD. 9/1

•DA-28-043-AMC-01373(E)
LINDE DIV UNION CARBIDE CORP INDIANAPOLIS IND
AD-629 596 FLD. 20/2

•DA-28-043-AMC-01379(S)
WESTERN DEVELOPMENT LABS PHILCO CORP PALO ALTO CALIF
WDL-TR-2684
AD-629 649 FLD. 17/2.1

•DA-31-124-ARO(D)-39GRANT
MELLON INST PITTSBURGH PA
(AROD-5272:1)
AD-629 902 FLD. 7/2

•DA-31-124-ARO(D)-67
PENNSYLVANIA STATE UNIV UNIVERSITY PARK DEPT OF ENGINEERING MECHANICS
(AROD-3842:5)
AD-629 379 FLD. 20/11

•DA-31-124-ARO(D)-170
STANFORD UNIV CALIF DEPT OF MATHEMATICS
(AROD-1323:32)
AD-629 394 FLD. 12/1

•DA-31-124-ARO(D)-194
TOWNE SCHOOL OF CIVIL AND MECHANICAL ENGINEERING UNIV OF PENNSYLVANIA PHILADELPHIA
(AROD-4792:2)
AD-629 903 FLD. 20/11

•DA-31-124-ARO(D)-209
MASSACHUSETTS INST OF TECH CAMBRIDGE OPERATIONS RESEARCH CENTER
TR-16
(AROD-968.41)
AD-629 553 FLD. 12/2

•DA-36-038-AMC-2723(A)
LEHIGH UNIV BETHLEHEM PA INST OF RESEARCH
AD-629 772 FLD. 11/6

•DA-36-039-AMC-01460(E)
SPRAGUE ELECTRIC CO NORTH ADAMS MASS
AD-629 515 FLD. 9/1

•DA-36-039-AMC-01461(E)
INTERNATIONAL RESISTANCE CO PHILADELPHIA PA DOCUMENTED RELIABILITY DIV
AD-629 436 FLD. 9/1

•DA-36-039-AMC-02347(E)
ADVANCED TECHNOLOGY CORP TIMONIUM MD
AD-629 512 FLD. 9/5

•DA-36-039-AMC-03200(E)
RESEARCH LAB OF ELECTRONICS MASS INST OF TECH CAMBRIDGE
AD-629 389 FLD. 9/1
AD-629 395 FLD. 6/16
AD-629 396 FLD. 20/9

•DA-36-039-AMC-03200(E) GRANT
RESEARCH LAB OF ELECTRONICS MASS INST OF TECH CAMBRIDGE
AD-629 397 FLD. 20/9

•DA-36-039-AMC-03200(E)
RESEARCH LAB OF ELECTRONICS MASS INST OF TECH CAMBRIDGE
AD-629 392 FLD. 7/4
AD-629 394 FLD. 7/4

AD-629 620 FLD. 6/3

•DA-36-039-AMC-03358(E)
GULTON INDUSTRIES INC METUCHEN N J
ALKALINE BATTERY DIV
N
AD-629 410 FLD. 10/3

•DA-36-039-AMC-03359(E)
GULTON INDUSTRIES INC METUCHEN N J
ALKALINE BATTERY DIV
4
AD-629 407 FLD. 10/3
EDL-M-788
AD-629 309 FLD. 9/5

•DA-36-039-AMC-3623(E)
MALLORY (P R) AND CO INC
INDIANAPOLIS IND
AD-629 748 FLD. 9/1

•DA-36-039-AMC-03630(E)
CORNELL-DUBILIER ELECTRONICS DIV
FEDERAL PACIFIC ELECTRIC CO
NORWOOD MASS
AD-629 513 FLD. 9/1

•DA-36-039-AMC-03634(E)
LINDEN LABS INC STATE COLLEGE PA
AD-629 484 FLD. 13/8

•DA-36-039-AMC-03638(E)
SYSTEMS INC ORLANDO FLA
AD-629 309 FLD. 9/1
AD-629 642 FLD. 9/5

•DA-36-039-AMC-06157(E)
GENERAL ELECTRIC CO AUBURN N Y
SEMICONDUCTOR PRODUCTS DEPT
AD-629 858 FLD. 9/1

•DA-36-039-SC-85131
EAGLE-PICHER RESEARCH LABS MIAMI
OKLA CHEMICAL AND METALS DIV
AD-629 251 FLD. 20/12

•DA-36-039-SC-85977
INTERNATIONAL RECTIFIER CORP LOS
ANGELES CALIF
AD-629 583 FLD. 9/1

•DA-44-009-AMC-625(T)
MASSACHUSETTS INST OF TECH
CAMBRIDGE DEPT OF ELECTRICAL
ENGINEERING
F AD-629 313 FLD. 10/1

•DA-44-177-AMC-25(T)
HILLER AIRCRAFT DIV FAIRCHILD
HILLER CORP PALO ALTO CALIF
AD-629 716 FLD. 1/3

•DA-44-177-AMC-25(T)
HILLER AIRCRAFT DIV FAIRCHILD
HILLER CORP PALO ALTO CALIF
ENGINEERING-64-43
(USAAVLABS-TR-64-68C)
AD-629 762 FLD. 1/3
ENGINEERING-64-44
(USAAVLABS-TR-64-68D)
AD-629 763 FLD. 1/3
HILLER-ER-64-46
AD-629 764 FLD. 1/3
HILLER-ER-64-47
(USAAVLABS-TR-64-68G)
AD-629 813 FLD. 1/3
ENGINEERING-64-48
(USAAVLABS-TR-64-68H)
AD-629 814 FLD. 1/3
AD-629 822 FLD. 1/3

•DA-44-177-TC-574DIS
NORTHWESTERN UNIV EVANSTON ILL
DEPT OF GEOGRAPHY
AD-629 285 FLD. 15/5

•DA-44-177-TC-685
NORTHWESTERN UNIV EVANSTON ILL
DEPT OF GEOGRAPHY
AD-629 285 FLD. 15/5

•DA-49-186-ORD-1076
CORNING GLASS WORKS BRADFORD PA
ELECTRONICS DIV
AD-629 773 FLD. 13/7

•DA-49-193-MD-2176
OREGON UNIV PORTLAND MEDICAL
SCHOOL
A AD-629 409 FLD. 6/16

•DA-49-193-MD-2374
NORTH CAROLINA UNIV CHAPEL HILL
DEPT OF ENVIRONMENTAL SCIENCES
AND ENGINEERING
A AD-629 249 FLD. 6/13

•DA-49-193-MD-2376
WALTER REED ARMY INST OF RESEARCH
WASHINGTON D C DIV OF
COMMUNICABLE DISEASE AND
IMMUNOLOGY
AD-629 483 FLD. 6/13

•DA-49-193-MD-2528
LOUISVILLE UNIV KY PERFORMANCE
RESEARCH LAB
AD-629 848 FLD. 5/10

•DA-91-591-EUC-3346
INSTITUTE FOR PERCEPTION RVO-TNO
SOESTERBERG (NETHERLANDS)
F AD-629 790 FLD. 6/16

•DA-91-591-EUC-3402
CLARENDON LAB UNIV OF OXFORD
(ENGLAND)
AD-629 792 FLD. 20/3

•DA-91-591-EUC-3487
AMSTERDAM UNIV (NETHERLANDS)
E-1044
F AD-629 456 FLD. 6/3

•DA-91-591-EUC-3607
SYSTEM RESEARCH LTD RICHMOND
(ENGLAND)
AD-629 597 FLD. 5/10

•DA-92-557-FEC-37308
TOKYO UNIV (JAPAN) DEPT OF
PHYSICAL THERAPY AND MEDICINE
F AD-629 741 FLD. 6/5

•DA-92-557-FEC-37427
NARA MEDICAL COLL KASHIHARA CITY
(JAPAN) DEPT OF PHYSIOLOGY
J-207
F AD-629 740 FLD. 6/16

•DA-92-557-FEG-36882
HIROSHIMA UNIV (JAPAN) DEPT OF
PHYSIOLOGY
(ARDG(FE)-J-220)
F AD-629 739 FLD. 6/16

•DA-ARO-49-092-64-53
RIO GRANDE DO SUL UNIV PORTO
ALEGRE (BRAZIL) INSTITUTO DE
FISICA•
AD-629 397 FLD. 20/8

•DA-ARO-49-092-64-G53
RIO GRANDE DO SUL UNIV PORTO
ALEGRE (BRAZIL) INSTITUTO DE
FISICA•
F AD-629 396 FLD. 20/8
AD-629 398 FLD. 20/8
AD-629 399 FLD. 20/8

•DA-ARO(D)-31-124-283
MELLON INST PITTSBURGH PA
(AROD-9272:1)
AD-629 402 FLD. 7/2

•DA-ARO(D)-31-124-G223
NORTHWESTERN UNIV EVANSTON ILL
DEPT OF ELECTRICAL ENGINEERING
(AROD-3298:21)
AD-629 380 FLD. 9/4

•DA-ARO(D)-31-124-G337
STANFORD UNIV CALIF DEPT OF
PHYSICS
(AROD-3269:17)
AD-629 631 FLD. 20/8

•DA-ARO(D)-31-124-G397
OBERLIN COLL OHIO DEPT OF
CHEMISTRY
(AROD-3952:3)
AD-629 384 FLD. 7/4

•DA-ARO(D)-31-124-G428
DUKE UNIV DURHAM N C DEPT OF
PHYSICS
(AROD-4131:10)
AD-629 385 FLD. 8/1

•DA-ARO(D)-31-124-G469
MASSACHUSETTS UNIV AMHERST
POLYMER RESEARCH INST
(AROD-4091:11)
AD-629 382 FLD. 11/9

•DA-ARO(D)-31-124-G547
CALIFORNIA UNIV RIVERSIDE DEPT OF
CHEMISTRY
(AROD-3763:14)
AD-629 386 FLD. 7/2
(AROD-3763:13)
AD-629 387 FLD. 7/2
(AROD-3763:12)
AD-629 388 FLD. 7/2
(AROD-3763:11)
AD-629 389 FLD. 7/2
(AROD-3763:10)
AD-629 390 FLD. 7/2
(AROD-3763:15)
AD-629 391 FLD. 7/2

•DA-ARO(D)-31-124-G605
BATTELLE MEMORIAL INST COLUMBUS
OHIO METAL SCIENCE GROUP
(AROD-4434:3)
AD-629 639 FLD. 20/2

•DA-ARO(D)-31-124-G607
YALE UNIV NEW HAVEN CONN
(AROD-893:10)
AD-629 637 FLD. 20/8

•DA-ARO(D)-31-124-G607DA
YALE UNIV NEW HAVEN CONN
(AROD-893:101)
AD-629 638 FLD. 20/8

•DA-ARO(D)-31-124-G623
NORTHWESTERN UNIV EVANSTON ILL
(AROD-4550:3)
AD-629 367 FLD. 20/11

•DA-ARO(D)-31-124-G641
IIT RESEARCH INST CHICAGO ILL
(AROD-4518:2)
AD-629 383 FLD. 20/2

•DA-ARO(D)-31-124-G692
CARNEGIE INST OF TECH PITTSBURGH
PA
(AROD-3221:3)
AD-629 381 FLD. 20/3

•DA-CML-18-108-61-G26
RUTGERS - THE STATE UNIV NEW
BRUNSWICK N J SANITARY
ENGINEERING LABS
S AD-629 316 FLD. 7/3

•DA-CRD-AG-592-544-63-G12
JIKEI UNIV TOKYO (JAPAN) SCHOOL
OF MEDICINE
J-162
F AD-629 749 FLD. 6/13

•DRB-2020-29
UNIVERSITY OF WESTERN ONTARIO
LONDON DEPT OF CHEMISTRY
AD-629 290 FLD. 8/1

•DRB-9930-97
MCGILL UNIV MONTREAL (QUEBEC)
DEPT OF CHEMISTRY

AD-629 243 FLD. 7/4
AD-629 909 FLD. 7/4

•FAA/BRD-A-90
BUREAU OF SPORT FISHERIES AND WILDLIFE WASHINGTON D C
(SRDS-RD-69-73)
F AD-629 969 FLD. 1/2

•N9ORI-136(01)
ELECTRICAL ENGINEERING RESEARCH LAB UNIV OF TEXAS AUSTIN
18
AD-629 628 FLD. 20/14

•N60RI-7701
UNIVERSITY OF SOUTHERN CALIFORNIA LOS ANGELES SCHOOL OF MEDICINE
AD-629 919 FLD. 6/19

•N9ONR-86200
CALIFORNIA UNIV LOS ANGELES INST OF GEOPHYSICS AND PLANETARY PHYSICS
AD-629 629 FLD. 8/11

•N228(62479)-59902
ZIMNEY CORP MONROVIA CALIF•
F AD-629 857 FLD. 18/9

•N600(23)63892
ROWLAND AND CO HADDONFIELD N J
R AND C-65-7-100
AD-629 943 FLD. 15/5

•N62206-1145
METEOROLOGICAL AND GEOASTROPHYSICAL ABSTRACTS WASHINGTON D C
OCEANOGRAPHY CONTRIBUTION-2
AD-629 966 FLD. 8/10

•N62558-4297
QUEEN'S UNIV BELFAST (NORTHERN IRELAND) DEPT OF APPLIED MATHEMATICS
AD-629 277 FLD. 20/8
AD-629 278 FLD. 20/8

•NASA-NSG-582
STANFORD UNIV CALIF DEPT OF AERONAUTICS AND ASTRONAUTICS
SUDAER-241
AD-629 659 FLD. 22/3

•NIH-EF-10992
CINCINNATI UNIV OHIO DEPT OF MICROBIOLOGY
AD-629 991 FLD. 6/13

•NIH-HTS-5550
RESEARCH LAB OF ELECTRONICS MASS INST OF TECH CAMBRIDGE
AD-629 622 FLD. 6/12

•NIH-NB-00492
COLUMBIA UNIV NEW YORK COLL OF PHYSICIANS AND SURGEONS
AD-629 919 FLD. 6/5

•NIH-NB-1027
CEDARS-SINAI MEDICAL CENTER LOS ANGELES CALIF CORNEA EYE INST
AD-629 621 FLD. 6/5

•NIH-NB-02891-09
SCRIPPS INSTITUTION OF OCEANOGRAPHY UNIV OF CALIFORNIA LA JOLLA
AD-629 920 FLD. 8

•NIH-NB-9281
MASSACHUSETTS EYE AND EAR INFIRMARY BOSTON OPHTHALMIC PLASTICS LAB
AD-629 902 FLD. 6/5

•NIH-NB-9281NR
MASSACHUSETTS EYE AND EAR INFIRMARY BOSTON OPHTHALMIC PLASTICS LAB
AD-629 903 FLD. 6/5
AD-629 904 FLD. 6/12

•NIH-NB-9379
ARMED FORCES INST OF PATHOLOGY WASHINGTON D C
AD-629 908 FLD. 6/5

•NOBS-89959
GRUMMAN AIRCRAFT ENGINEERING CORP BETHPAGE N Y
XAR-A-45
AD-629 913 FLD. 13/10

•NOBS-92143
OLIN MATHIESON CHEMICAL CORP NEW HAVEN CONN CHEMICALS DIV
AD-629 944 FLD. 11/10

•NOBS-92930
AUTOMATION INDUSTRIES INC BOULDER COLO RESEARCH DIV
TR-69-75
AD-629 262 FLD. 13/8

•NOBSR-87935
RADIO CORP OF AMERICA HARRISON N J MICROWAVE TUBE OPERATIONS DEPT
AD-629 911 FLD. 9/1

•NOBSR-93292 (1737)
VICTORY ENGINEERING CORP SPRINGFIELD N J
AD-629 965 FLD. 9/1

•NONR-222(51)
CLINICAL INVESTIGATION CENTER OAKLAND CALIF
CIC-TR-15
AD-629 334 FLD. 6/5
CIC-TR-14
F AD-629 335 FLD. 6/5
CIC-TR-10
AD-629 336 FLD. 5/10
CIC-TR-11
AD-629 337 FLD. 5/10
CIC-TR-12
F AD-629 338 FLD. 5/10
CIC-TR-9
(NAVMED-MR009.12-1700.7)
AD-629 339 FLD. 6/5
CIC-TR-13
(NAVMED-MR009.12-1908.7)
AD-629 340 FLD. 6/5

•NONR-222(62)
CALIFORNIA UNIV BERKELEY DEPT OF MATHEMATICS
AD-629 299 FLD. 12/1

•NONR-225(37)
COMPUTER SCIENCE DIV STANFORD UNIV CALIF
CS-30
(TT-65-64824)
AD-629 829 FLD. 9/2
CS29
AD-629 837 FLD. 12/1

•NONR-225(48)
MICROWAVE LAB STANFORD UNIV CALIF
ML-1372
AD-629 567 FLD. 20/5

•NONR-225(50)
STANFORD UNIV CALIF INST FOR MATHEMATICAL STUDIES IN THE SOCIAL SCIENCES
TR-139
AD-629 535 FLD. 5/3

•NONR-225(52)
STANFORD UNIV CALIF DEPT OF STATISTICS
TR-111
AD-629 458 FLD. 12/1

•NONR-225(67)
HIGH ENERGY PHYSICS LAB STANFORD UNIV CALIF
HEPL-406
AD-629 271 FLD. 20/8

•NONR-225(67)
HIGH ENERGY PHYSICS LAB STANFORD UNIV CALIF
HEPL-391
AD-629 270 FLD. 20/8
HEPL-411
AD-629 272 FLD. 20/8

•NONR-225(86)
STANFORD UNIV CALIF DEPT OF PHYSICS
AD-629 298 FLD. 20/8

•NONR-233(31) GRANT
SCRIPPS INSTITUTION OF OCEANOGRAPHY UNIV OF CALIFORNIA LA JOLLA
AD-629 920 FLD. 8

•NONR-233(88)
CALIFORNIA UNIV LOS ANGELES DEPT OF PHYSICS
AD-629 944 FLD. 7/4
AD-629 945 FLD. 20/3

•NONR-266
COLUMBIA UNIV NEW YORK COLL OF PHYSICIANS AND SURGEONS
AD-629 619 FLD. 6/5

•NONR-266(56)
COLUMBIA UNIV NEW YORK
AD-629 917 FLD. 20/10
AD-629 918 FLD. 20/10

•NONR-266(71) GRANT
COLUMBIA UNIV NEW YORK COLL OF PHYSICIANS AND SURGEONS
AD-629 919 FLD. 6/5

•NONR-404(19)
RUTGERS - THE STATE UNIV NEW BRUNSWICK N J SCHOOL OF CHEMISTRY
TR-1
AD-629 595 FLD. 7/4

•NONR-477(29) GRANT
WASHINGTON UNIV SEATTLE DEPT OF ATMOSPHERIC SCIENCES
AD-629 299 FLD. 4/1

•NONR-495(18)
OHIO STATE UNIV RESEARCH FOUNDATION COLUMBUS
OSURF-109
AD-629 256 FLD. 5/10

•NONR-495(20)
OHIO STATE UNIV RESEARCH FOUNDATION COLUMBUS
F AD-629 829 FLD. 20/12

•NONR-551(36)
PENNSYLVANIA UNIV PHILADELPHIA DEPT OF PHYSICS
TR-25
AD-629 718 FLD. 20/3
TR-26
AD-629 719 FLD. 7/4
TR-27
AD-629 720 FLD. 20/3
TR-28
AD-629 721 FLD. 20/3

•NONR-551(42)
TOWNE SCHOOL OF CIVIL AND MECHANICAL ENGINEERING UNIV OF PENNSYLVANIA PHILADELPHIA
(AROD-4752.2)
AD-629 903 FLD. 20/11

•NONR-562(09)
METCALF CHEMICAL LABS BROWN UNIV PROVIDENCE R I
F AD-629 935 FLD. 20/2

•NONR-595(10)
MARYLAND UNIV COLLEGE PARK DEPT OF PHYSICS AND ASTRONOMY
AD-629 789 FLD. 20/9

•NONR-595(22)
MARYLAND UNIV COLLEGE PARK INST

FOR FLUID DYNAMICS AND APPLIED MATHEMATICS
BN-429
AD-629 441 FLD. 6/1

•NONR-595(22)
MARYLAND UNIV COLLEGE PARK INST FOR FLUID DYNAMICS AND APPLIED MATHEMATICS
TN-BN-423
AD-629 816 FLD. 20/10

•NONR 656(39) GRANT
PENNSYLVANIA STATE UNIV UNIVERSITY PARK IONOSPHERE RESEARCH LAB
SCIENTIFIC-262
AD-629 847 FLD. 20/14

•NONR-669(16)
SYRACUSE UNIV RESEARCH INST N Y DEPT OF MECHANICAL AND AEROSPACE ENGINEERING
ME937-651I
AD-629 302 FLD. 20/4

•NONR-710(31)
FLORIDA STATE UNIV TALLAHASSEE
AD-629 673 FLD. 12/2

•NONR-710(36) GRANT
MINNESOTA UNIV MINNEAPOLIS DEPT OF MICROBIOLOGY
AD-629 423 FLD. 6/13

•NONR-760(15)
CASE INST OF TECH CLEVELAND OHIO DEPT OF PHYSICS
TR-19
AD-629 314 FLD. 20/8

•NONR-760(29)
CARNEGIE INST OF TECH PITTSBURGH PA GRADUATE SCHOOL OF INDUSTRIAL ADMINISTRATION
MSRR-53
AD-629 729 FLD. 5/1
MSRR-54
AD-629 730 FLD. 5/1

•NONR-761(06)
GEORGE WASHINGTON UNIV WASHINGTON D C LOGISTICS RESEARCH PROJECT
AD-629 679 FLD. 12/2

•NONR-761(09)
GEORGE WASHINGTON UNIV WASHINGTON D C SCHOOL OF ENGINEERING AND APPLIED SCIENCE
A
AD-629 828 FLD. 9/1

•NONR-855(04)
PARIS UNIV (FRANCE) LABORATOIRE DE PSYCHOLOGIE SOCIALE
AD-629 717 FLD. 5/10

•NONR-988(13)
FLORIDA STATE UNIV TALLAHASSEE
AD-629 673 FLD. 12/2

•NONR-991(00)
GEORGIA INST OF TECH ATLANTA ENGINEERING EXPERIMENT STATION
AD-629 823 FLD. 20/2

•NONR-991(06)
GEORGIA INST OF TECH ATLANTA ENGINEERING EXPERIMENT STATION
AD-629 823 FLD. 20/2

•NONR-1100(13)
PURDUE UNIV LAFAYETTE IND DEPT OF CHEMISTRY
AD-629 300 FLD. 21/9.2

•NONR-1224(23)
MICHIGAN UNIV ANN ARBOR DEPT OF PHYSICS
03106-21-T
AD-629 518 FLD. 20/8

•NONR-1228(34)
NORTHWESTERN UNIV EVANSTON ILL STRUCTURAL MECHANICS LAB
TR-65-3
AD-629 737 FLD. 21/8.2

•NONR-1509(06) GRANT
IOWA UNIV IOWA CITY DEPT OF PHYSICS AND ASTRONOMY
IU-65-35
AD-629 507 FLD. 8/14

•NONR-1670(00)
BELL HELICOPTER CO FORT WORTH TEX
D228-921-021
AD-629 579 FLD. 1/4

•NONR-1858(09)
PRINCETON UNIV N J
AD-629 434 FLD. 7/4

•NONR-1858(16) GRANT
PRINCETON UNIV N J ECONOMETRIC RESEARCH PROGRAM
RM-79
AD-629 259 FLD. 5/3

•NONR-1858(39)
HIGH ENERGY PHYSICS LAB STANFORD UNIV CALIF
HEPL-406
AD-629 271 FLD. 20/8

•NONR-1866(19)
LYMAN LAB OF PHYSICS HARVARD UNIV CAMBRIDGE MASS
AD-629 517 FLD. 7/4

•NONR-1866(34)
HARVARD UNIV CAMBRIDGE MASS DEPT OF MATHEMATICS
AD-629 580 FLD. 20/4

•NONR-1866(48) GRANT
HARVARD COLL OBSERVATORY CAMBRIDGE MASS
SCIENTIFIC-4
AD-629 713 FLD. 3/2
SCIENTIFIC-8
AD-629 714 FLD. 7/4

•NONR-2121(13)
CHICAGO UNIV ILL INST FOR THE STUDY OF METALS
TR-19
AD-629 803 FLD. 7/4

•NONR-2168(03)
CINCINNATI UNIV OHIO DEPT OF AEROSPACE ENGINEERING
TR-AE-6504
AD-629 446 FLD. 20/4

•NONR-2196(00)
WOODS HOLE OCEANOGRAPHIC INSTITUTION MASS
REF-65-44
AD-629 815 FLD. 8/3

•NONR-2216(09)
SCRIPPS INSTITUTION OF OCEANOGRAPHY SAN DIEGO CALIF MARINE PHYSICAL LAB
MPL-U-49-62
AD-629 601 FLD. 13/10

•NONR-2216(12)
SCRIPPS INSTITUTION OF OCEANOGRAPHY UNIV OF CALIFORNIA LA JOLLA
SIO-REFERENCE-65-17
AD-629 826 FLD. 8/10

•NONR-2216(23)
SCRIPPS INSTITUTION OF OCEANOGRAPHY UNIV OF CALIFORNIA LA JOLLA
SIO-REFERENCE-65-17
AD-629 826 FLD. 8/10

•NONR-2242(00)
FRANKLIN INST RESEARCH LABS PHILADELPHIA PA
I-A2049-25
AD-629 288 FLD. 13/9
T-A2049-26
(TT-65-64616)
AD-629 289 FLD. 13/9

•NONR-2556(00)
DEFENSE SYSTEMS LAB SYRACUSE UNIV RESEARCH CORP N Y
DSL-R-136
AD-629 295 FLD. 9/5

•NONR-2713(00)
PLANNING RESEARCH CORP LOS ANGELES CALIF
PRC-R-254
AD-629 252 FLD. 15/5

•NONR 3351(00)
WOODS HOLE OCEANOGRAPHIC INSTITUTION MASS
REF-65-44
AD-629 815 FLD. 8/3

•NONR•3560(00)
AERONUTRONIC DIV PHILCO CORP NEWPORT BEACH CALIF
PUB. U-3127
AD-629 568 FLD. 3/3

•NONR•3662(01)
MASSACHUSETTS EYE AND EAR INFIRMARY BOSTON OPHTHALMIC PLASTICS LAB
AD-629 480 FLD. 11/9
AD-629 482 FLD. 11/9

•NONR•3662(01) GRANT
CEDARS-SINAI MEDICAL CENTER LOS ANGELES CALIF CORNEA EYE INST
AD-629 621 FLD. 6/5
MASSACHUSETTS EYE AND EAR INFIRMARY BOSTON OPHTHALMIC PLASTICS LAB
AD-629 503 FLD. 6/5
AD-629 504 FLD. 6/12

•NONR•3732(00)
CENTER FOR NAVAL ANALYSES WASHINGTON D C SYSTEMS EVALUATION GROUP
RESEARCH CONTRIBUTION-1
AD-629 447 FLD. 5/1
INS-RESEARCH-CONTRIBUTION-7
AD-629 784 FLD. 13/10
INS-RESEARCH-CONTRIBUTION-13
F AD-629 786 FLD. 5/9

•NONR•3815(00)(X)
AMPEX CORP REDWOOD CITY CALIF
RR-65-11
AD-629 827 FLD. 13/9

•NONR•3942(00)
GENERAL ELECTRIC CO SCHENECTADY N Y RESEARCH AND DEVELOPMENT CENTER
AD-629 825 FLD. 14/2

•NONR•4131(00)
LINDE DIV UNION CARBIDE CORP INDIANAPOLIS IND
SRCR-65-9
F AD-629 514 FLD. 20/5

•NONR•4217(00)
IDAHO UNIV MOSCOW
AD-629 641 FLD. 7/2

•NONR•4218(00)
HUMAN FACTORS RESEARCH INC LOS ANGELES CALIF
TR-791-5
AD-629 616 FLD. 1/2

•NONR•4323(00)(X)
TUNG-SOL ELECTRIC INC BLOOMFIELD N J
AD-629 538 FLD. 9/1

•NONR•4424(00)
LITTLE (ARTHUR D) INC CAMBRIDGE MASS
TR-16

AD-624 291 FLD. 7/4
TR-17
AD-624 292 FLD. 7/4

•NONR-4480(00)
NORTH AMERICAN AVIATION INC COLUMBUS OHIO
NA65M-917
F AD-624 830 FLD. 5/8

•NONR-4674(00)
APPLIED TECHNOLOGY ASSOCIATES INC RAMSEY N J
ATA-106
AD-624 942 FLD. 20/11

•NONR-4686(00)
DEFENSE SYSTEMS LAB SYRACUSE UNIV RESEARCH CORP N Y
DSL-R-136
AD-624 295 FLD. 9/5

•NONR-4718(00)
GPL DIV GENERAL PRECISION INC PLEASANTVILLE N Y
GPL-A-31-2
AD-624 981 FLD. 20/5

•NONR-4719(00)
TUNG-SOL ELECTRIC INC BLOOMFIELD N J
F AD-624 588 FLD. 9/1

•NONR-4811(00)
VIRGINIA UNIV CHARLOTTESVILLE DEPT OF ECONOMICS
ONR-RM-1
AD-624 499 FLD. 12/2
ONR-RM-2
AD-624 500 FLD. 12/2
ONR-RM-3
AD-624 501 FLD. 12/2

•NONR-4847(00)
PERKIN-ELMER CORP NORWALK CONN ELECTRO-OPTICAL DIV
PE-TR-8186
AD-624 301 FLD. 20/6

•NONR-4939(00) GRANT
MOLECULAR PSYCHOBIOLOGY LAB YORK UNIV TORONTO (ONTARIO)
MPL-1
AD-624 528 FLD. 5/10
MPL-2
AD-624 709 FLD. 5/10

•NONR-4958(00)
ITT DATA AND INFORMATION SYSTEMS DIV PARAMUS N J
F AD-624 921 FLD. 9/2

•NONR-366201 GRANT
MASSACHUSETTS EYE AND EAR INFIRMARY BOSTON OPHTHALMIC PLASTICS LAB
AD-624 502 FLD. 6/5

•NONR(G)-00047-64
CALIFORNIA UNIV SAN DIEGO INST FOR RADIATION PHYSICS AND AERODYNAMICS
F AD-624 317 FLD. 20/5

•NOW-61-0400
MASSACHUSETTS INST OF TECH CAMBRIDGE ELECTRONIC SYSTEMS LAB
ESL-R-238
AD-624 693 FLD. 9/4

•NOW-62-0604-C
JOHNS HOPKINS UNIV SILVER SPRING MD APPLIED PHYSICS LAB
(NAVWEPS-16-1-533)
AD-624 319 FLD. 9/1
TG-520
AD-624 475 FLD. 8/4
TG-503
AD-624 476 FLD. 22/3
TG-517
AD-624 479 FLD. 22/1

•NOW-62-1084-D
RADIO CORP OF AMERICA CAMDEN N J COMMUNICATIONS SYSTEMS DIV
CR-65-591-7
AD-624 697 FLD. 17/2.1

•NOW-62-0405-C
ORDNANCE AEROPHYSICS LAB GENERAL DYNAMICS/DAINGERFIELD TEX
OAL-147-1
AD-624 598 FLD. 20/4

•NOW-62-0749DI
LITTON SYSTEMS INC WALTHAM MASS
AD-624 838 FLD. 10/2

•NOW-63-0762-C
NORAIR DIV NORTHROP CORP HAWTHORNE CALIF
NOR-65-48(BLC-161)
S AD-624 488 FLD. 20/4

•NOW-64-0416-D
DENVER RESEARCH INST COLO
DRI-2290
AD-624 478 FLD. 9/5

•NOW-65-0090-F
SYRACUSE UNIV RESEARCH INST N Y DEPT OF CHEMICAL ENGINEERING AND METALLURGY
MET.E-1241-0965-FR
F AD-624 267 FLD. 11/6

•NOW-65-0097-F
GENERAL ELECTRIC CO SCHENECTADY N Y RESEARCH AND DEVELOPMENT CENTER
F AD-624 287 FLD. 13/8

•NRC-APA-122
MOLECULAR PSYCHOBIOLOGY LAB YORK UNIV TORONTO (ONTARIO)
MPL-2
AD-624 709 FLD. 5/10

•NRC-APA-122DI
MOLECULAR PSYCHOBIOLOGY LAB YORK UNIV TORONTO (ONTARIO)
MPL-1
AD-624 528 FLD. 5/10

•NSF -GP-2914
PENNSYLVANIA STATE UNIV UNIVERSITY PARK IONOSPHERE RESEARCH LAB
SR-253
(AFCRL-65-780)
AD-624 319 FLD. 8/14

•NSF-G-6218
HARVARD UNIV CAMBRIDGE MASS DEPT OF CHEMISTRY
AD-624 916 FLD. 7/3

•NSF-G-19578
CINCINNATI UNIV OHIO DEPT OF MICROBIOLOGY
AD-624 491 FLD. 6/13

•NSF-G-24073
RESEARCH LAB OF ELECTRONICS MASS INST OF TECH CAMBRIDGE
AD-624 397 FLD. 20/9

•NSF-G-24962NR
PRINCETON UNIV N J ECONOMETRIC RESEARCH PROGRAM
RM-79
AD-624 254 FLD. 5/3

•NSF-GB-2500
CALIFORNIA UNIV LOS ANGELES
AD-624 912 FLD. 6/1

•NSF-GP-272-1
IOWA UNIV IOWA CITY DEPT OF PHYSICS AND ASTRONOMY
IU-65-35
AD-624 907 FLD. 8/14

•NSF-GP-846
PENNSYLVANIA STATE UNIV UNIVERSITY PARK IONOSPHERE RESEARCH LAB
SR-250
(AFCRL-65-778)
AD-624 393 FLD. 4/1
SCIENTIFIC-262
AD-624 847 FLD. 20/14

•NSF-GP-1590
STANFORD UNIV CALIF DEPT OF AERONAUTICS AND ASTRONAUTICS
SUDAER-223
AD-624 618 FLD. 16/1

•NSF-GP-2914
PENNSYLVANIA STATE UNIV UNIVERSITY PARK IONOSPHERE RESEARCH LAB
SR-252
(AFCRL-65-779)
AD-624 392 FLD. 4/1

•NSF-GP-2971
WASHINGTON UNIV SEATTLE DEPT OF ATMOSPHERIC SCIENCES
AD-624 294 FLD. 4/1

•NSG-237-62
CALIFORNIA UNIV LOS ANGELES DEPT OF PHYSICS
(AFOSR-65-1663)
AD-624 376 FLD. 20/12

•NSG-438
HARVARD COLL OBSERVATORY CAMBRIDGE MASS
SCIENTIFIC-4
AD-624 713 FLD. 3/2
SCIENTIFIC-8
AD-624 714 FLD. 7/4

•OCD-OS-62-189
STANFORD RESEARCH INST MENLO PARK CALIF
AD-624 706 FLD. 15/3

•OCD-PS-64-56
RESEARCH TRIANGLE INST DURHAM N C OPERATIONS RESEARCH AND ECONOMICS DIV
R-OU-157
F AD-624 701 FLD. 15/3
R-OU-157
F AD-624 702 FLD. 15/3
R-OU-157
F AD-624 703 FLD. 15/3
R-OU-157
F AD-624 704 FLD. 15/3

•OCD-PS-65-69
HRB-SINGER INC STATE COLLEGE PA
87311-F
F AD-624 919 FLD. 5/11

•PHS-AI-01601NR
MINNESOTA UNIV MINNEAPOLIS DEPT OF MICROBIOLOGY
AD-624 423 FLD. 6/13

•PHS-GM-11319-01
WISCONSIN UNIV MADISON THEORETICAL CHEMISTRY INST
AD-624 831 FLD. 7/4

•PHT-3T1-NB-5379-0351
ARMED FORCES INST OF PATHOLOGY WASHINGTON D C
AD-624 805 FLD. 6/5
P-204
AD-624 715 FLD. 19/4

•SD-67
NORTHWESTERN UNIV EVANSTON ILL MATERIALS RESEARCH CENTER
AD-624 427 FLD. 11/7

REPORT NUMBER INDEX

The fields/groups indicated here apply only to the Technical Abstract Bulletin Section (on white paper).

4
AD-629 407 FLD. 10/3
AD-629 410 FLD. 10/3
AD-629 828 FLD. 9/1

8
AD-629 603 FLD. 9/5

19
AD-629 628 FLD. 20/14

25-TR
AD-629 839 FLD. 14/5

26
AD-629 378 FLD. 7/4

65-9
AD-629 753 FLD. 6/19

300.A-744
AD-629 698 FLD. 20/6

933
AD-629 734 FLD. 20/6

939
AD-629 690 FLD. 20/1

1000F
AD-629 697 FLD. 17/2.1

03106-21-T
AD-629 518 FLD. 20/8

9436-6002-SU-000
AD-629 563 FLD. 20/9

65318
AD-629 846 FLD. 11/7

87311-F
AD-629 519 FLD. 5/11

A65-8
AD-629 694 FLD. 7/3

A65-9
AD-629 607 FLD. 19/1

ACIC-RP-19
AD-629 474 FLD. 8/4

AEROCHEM-TP-118
AD-629 581 FLD. 22/1

AF-2498/8
AD-629 617 FLD. 9/1

AFCRL-65-252
AD-629 846 FLD. 11/7

AFCRL-65-537
AD-629 843 FLD. 20/14

AFCRL-65-585
AD-629 541 FLD. 4/1

AFCRL-65-680
AD-629 305 FLD. 5/7

AFCRL-65-681
AD-629 555 FLD. 5/7

AFCRL-65-722
AD-629 617 FLD. 9/1

AFCRL-65-723
AD-629 275 FLD. 3/2

AFCRL-65-758
AD-629 577 FLD. 12/2

AFCRL-65-759
AD-629 578 FLD. 12/2

AFCRL-65-766
AD-629 844 FLD. 8/7

AFCRL-65-778
AD-629 393 FLD. 4/1

AFCRL-65-779
AD-629 392 FLD. 4/1

AFCRL-65-780
AD-629 319 FLD. 8/14

AFCRL-65-807
AD-629 276 FLD. 7/4

AFCRL-65-820
AD-629 615 FLD. 22/2

AFOSR-65-1042
AD-629 371 FLD. 12/1

AFOSR-65-1426
AD-629 572 FLD. 11/4

AFOSR-65-1493
AD-629 297 FLD. 9/1

AFOSR-65-1560
AD-629 264 FLD. 7/4

AFOSR-65-1633
AD-629 280 FLD. 7/4

AFOSR-65-1634
AD-629 279 FLD. 7/4

AFOSR-65-1641
AD-629 274 FLD. 7/4

AFOSR-65-1642
AD-629 273 FLD. 7/4

AFOSR-65-1643
AD-629 287 FLD. 7/4

AFOSR-65-1644
AD-629 492 FLD. 7/3

AFOSR-65-1645
AD-629 372 FLD. 7/2

AFOSR-65-1646
AD-629 373 FLD. 7/3

AFOSR-65-1647
AD-629 374 FLD. 7/4

AFOSR-65-1648
AD-629 324 FLD. 7/2

AFOSR-65-1649
AD-629 329 FLD. 14/2

AFOSR-65-1650
AD-629 332 FLD. 7/2

AFOSR-65-1651
AD-629 363 FLD. 8/1

AFOSR-65-1652
AD-629 330 FLD. 7/4

AFOSR-65-1653
AD-629 369 FLD. 7/3

AFOSR-65-1656
AD-629 326 FLD. 7/2

AFOSR-65-1658
AD-629 328 FLD. 20/4

AFOSR-65-1659
AD-629 327 FLD. 20/4

AFOSR-65-1662
AD-629 378 FLD. 7/4

AFOSR-65-1663
AD-629 376 FLD. 20/12

AFOSR-65-1664
AD-629 377 FLD. 11/6

AFOSR-65-1665
AD-629 375 FLD. 20/9

AFOSR-65-1666
AD-629 368 FLD. 8/1

AFOSR-65-1667
AD-629 365 FLD. 8/1

AFOSR-65-1668
AD-629 366 FLD. 8/1

AFOSR-65-1669
AD-629 364 FLD. 7/3

AFOSR-65-1670
AD-629 331 FLD. 7/4

AFOSR-65-1672
AD-629 329 FLD. 7/3

AFOSR-65-1674
AD-629 333 FLD. 7/4

AFOSR-65-1678
AD-629 318 FLD. 20/8

AFOSR-65-1712
AD-629 268 FLD. 12/1

AFOSR-65-1723
AD-629 265 FLD. 12/1

AFOSR-65-1724
AD-629 266 FLD. 12/1

AFOSR-65-1725
AD-629 307 FLD. 12/1

AFOSR-65-1727
AD-629 554 FLD. 20/4

AFOSR-65-1768
AD-629 506 FLD. 20/9

AFOSR-65-1794
AD-629 551 FLD. 20/4

AFOSR-65-2206
AD-629 834 FLD. 21/2

AFOSR-65-2242
AD-629 832 FLD. 6/16

AFOSR-65-2254
AD-629 547 FLD. 8/11

AFOSR-65-2261
AD-629 537 FLD. 19/1

AFOSR-65-2264
AD-629 833 FLD. 7/4

AFOSR-65-2283
AD-629 548 FLD. 9/2

AFOSR-65-2291
AD-629 533 FLD. 21/9.2

AFOSR-65-2304
AD-629 765 FLD. 20/6

AFOSR-65-2306
AD-629 771 FLD. 9/5

AFOSR-2931
AD-629 562 FLD. 20/12

AGC-3029
AD-629 473 FLD. 14/2

AID-62-132
AD-629 791 FLD. 21/4

AID-62-177
AD-629 790 FLD. 11/8

AID-T-63-97
AD-629 792 FLD. 11/1

AMRL-TR-65-44
AD-629 556 FLD. 6/11

AMRL-TR-65-63
AD-629 342 FLD. 6/11

AMRL-TR-69-129
AD-629 473 FLD. 14/2

AMRL-TR-69-127
AD-629 487 FLD. 6/2

AMRL-TR-69-133
AD-629 468 FLD. 9/2

AMRL-TR-69-138
AD-629 467 FLD. 22/3

AMRL-TR-69-140
AD-629 322 FLD. 5/10

AMRL-TR-69-143
AD-629 470 FLD. 14/5

AMRL-TR-69-148
AD-629 469 FLD. 6/1

AN-1258-VOL-2
AD-629 486 FLD. 20/9

APL-TDR-64-124-VOL-2
AD-629 486 FLD. 20/9

ARDC(FE
AD-629 739 FLD. 6/16

ARDC-J-188
AD-629 741 FLD. 6/5

ARL-TR-69-21
AD-629 612 FLD. 6/3

ARL-TR-69-22
AD-629 626 FLD. 6/19

AROD-893:10
AD-629 637 FLD. 20/8

AROD-893:101
AD-629 638 FLD. 20/8

AROD-968.41
AD-629 553 FLD. 12/2

AROD-1323:32
AD-629 399 FLD. 12/1

AROD-3221:3
AD-629 381 FLD. 20/3

AROD-3269:17
AD-629 631 FLD. 20/8

AROD-3298:21
AD-629 380 FLD. 9/4

AROD-3763:10
AD-629 390 FLD. 7/2

AROD-3763:11
AD-629 389 FLD. 7/2

AROD-3763:12
AD-629 388 FLD. 7/2

AROD-3763:13
AD-629 387 FLD. 7/2

AROD-3763:14
AD-629 386 FLD. 7/2

AROD-3763:15
AD-629 391 FLD. 7/2

AROD-3842:5
AD-629 379 FLD. 20/11

AROD-3952:3
AD-629 384 FLD. 7/4

AROD-4051:11
AD-629 382 FLD. 11/9

AROD-4131:10
AD-629 385 FLD. 8/1

AROD-4434:3
AD-629 639 FLD. 20/2

AROD-4518:2
AD-629 383 FLD. 20/2

AROD-4550:3
AD-629 367 FLD. 20/11

AROD-4752:2
AD-629 403 FLD. 20/11

AROD-5272:1
AD-629 402 FLD. 7/2

ARPA-VUF-1020
AD-629 496 FLD. 18/3

ARPA-VUF-1026
AD-629 522 FLD. 18/3

ARPA-VUF-3019
AD-629 529 FLD. 18/3

ASD-TDR-63-316-VOL-9
AD-629 520 FLD. 9/1

ATA-106
AD-629 442 FLD. 20/11

ATD-69-89
AD-629 439 FLD. 20/6

ATD-69-101
AD-629 575 FLD. 22/1

ATD-69-108
AD-629 462 FLD. 9/1

ATD-P-65-65
AD-629 687 FLD. 19/1

ATD-P-65-71
AD-629 743 FLD. 17/2

ATD-P-65-72
AD-629 821 FLD. 17/2

ATD-P-65-96
AD-629 809 FLD. 20/4

BN-925
AD-629 441 FLD. 6/1

CAL-141
AD-629 433 FLD. 20/4

CIC-TR-9
AD-629 339 FLD. 6/5

CIC-TR-10
AD-629 336 FLD. 5/10

CIC-TR-11
AD-629 337 FLD. 5/10

CIC-TR-12
AD-629 338 FLD. 5/10

CIC-TR-13
AD-629 340 FLD. 6/5

CIC-TR-14
AD-629 335 FLD. 6/5

CIC-TR-15
AD-629 334 FLD. 6/5

CM-1036-1
AD-629 598 FLD. 20/4

COSMIC-96
AD-629 440 FLD. 17/9

CR-65-591-7
AD-629 697 FLD. 17/2.1

CRDL-TM-7-3
AD-629 525 FLD. 7/3

CS29
AD-629 837 FLD. 12/1

CS-30
AD-629 829 FLD. 9/2

D1-82-0482
AD-629 745 FLD. 12/1

D228-921-021
AD-629 579 FLD. 1/4

DCBRL-449
AD-629 244 FLD. 7/3

DRI-2290
AD-629 478 FLD. 9/5

DSL-R-136
AD-629 295 FLD. 9/5

DTMB-2129
AD-629 688 FLD. 13/10

E-1044
AD-629 456 FLD. 6/3

ECOM-01313-1
AD-629 561 FLD. 9/1

ECOM-2624
AD-629 599 FLD. 18/4

ECOM-2626
AD-629 471 FLD. 14/2

ECOM-2634
AD-629 855 FLD. 9/1

ECOM-5021
AD-629 627 FLD. 9/2

EDL-M-788
AD-629 304 FLD. 9/5

EE-957-6509T13
AD-629 605 FLD. 20/14

EES-9E(1)66904
AD-629 284 FLD. 11/6

EES-9P(1)66918
AD-629 289 FLD. 11/6

ENG-99-696-70
AD-629 634 FLD. 6/17

ENGINEERING-64-93
AD-629 762 FLD. 1/3

ENGINEERING-64-94
AD-629 763 FLD. 1/3

ENGINEERING-64-98
AD-629 814 FLD. 1/3

EOS-9830-M-10
AD-629 545 FLD. 20/12

ER-6959-4
AD-629 539 FLD. 11/6

ERL-65-26
AD-629 602 FLD. 20/14

ESD-TDR-63-170
AD-629 490 FLD. 9/1

ESD-TDR-64-144
AD-629 489 FLD. 9/2

ESD-TDR-65-318
AD-629 611 FLD. 20/11

ESD-TDR-65-445
AD-629 362 FLD. 9/2

ESD-TDR-65-450
AD-629 530 FLD. 9/1

ESD-TDR-65-460
AD-629 358 FLD. 22/2

ESD-TDR-65-498

AD-629 733 FLD. 20/14

ESD-TDR-65-500
AD-629 732 FLD. 20/14

ESD-TDR-65-503
AD-629 723 FLD. 20/3

ESD-TDR-65-545
AD-629 731 FLD. 3/1

ESD-TDR-65-548
AD-629 722 FLD. 7/2

ESD-TDR-65-554
AD-629 426 FLD. 12/1

ESL-R-238
AD-629 693 FLD. 9/4

EXP-M-49-696-4
AD-629 636 FLD. 14/2

FR-65-10-182
AD-629 561 FLD. 9/1

FSTC-381-T65-481
AD-629 571 FLD. 6/8

FSTC-381-T65-532
AD-629 585 FLD. 6/8

FSTC-381-T65-546
AD-629 584 FLD. 6/3

FSTC-381-T65-548
AD-629 569 FLD. 6/13

FSTC-381-T65-571
AD-629 570 FLD. 2/6

FTD-MT-64-434
AD-629 758 FLD. 20/11

FTD-MT-64-437
AD-629 759 FLD. 1/1

FTD-MT-64-455
AD-629 767 FLD. 21/5

FTD-MT-64-483
AD-629 760 FLD. 11/4

FTD-MT-65-10
AD-629 761 FLD. 20/4

FTD-MT-65-57
AD-629 820 FLD. 21/5

FTD-TT-63-789
AD-629 854 FLD. 6/4

FTD-TT-65-804
AD-629 849 FLD. 20/1

FTD-TT-65-819
AD-629 859 FLD. 17/2.1

FTD-TT-65-830
AD-629 726 FLD. 9/2

FTD-TT-65-891
AD-629 728 FLD. 20/5

FTD-TT-65-931
AD-629 851 FLD. 12/1

FTD-TT-65-1015
AD-629 724 FLD. 21/4

FTD-TT-65-1026
AD-629 836 FLD. 10/1

FTD-TT-65-1028
AD-629 852 FLD. 21/5

FTD-TT-65-1032
AD-629 850 FLD. 20/13

FTD-TT-65-1562
AD-629 853 FLD. 9/2

FTD-TT-65-1610
AD-629 835 FLD. 20/9

FTD-TT-65-1658
AD-629 727 FLD. 9/2

FTD-TT-65-1662
AD-629 725 FLD. 7/3

GE/EE/65-14
AD-629 892 FLD. 12/1

GE/EE/65-18
AD-629 477 FLD. 6/16

GPL-A-31-2
AD-629 481 FLD. 20/5

HAC-FR-65-10-96
AD-629 559 FLD. 18/8

HEPL-391
AD-629 270 FLD. 20/8

HEPL-406
AD-629 271 FLD. 20/8

HEPL-411
AD-629 272 FLD. 20/8

HILLER-ER-64-96
AD-629 769 FLD. 1/3

HILLER-ER-64-97
AD-629 813 FLD. 1/3

I-A2049-25
AD-629 288 FLD. 13/9

IITRI-A6093-12
AD-629 696 FLD. 17/2

IITRI-U6020-6
AD-629 590 FLD. 21/9.2

ILCEP-MONOGRAPH-2
AD-629 448 FLD. 5/2

ILCEP-MONOGRAPH-8
AD-629 449 FLD. 5/9

INFORMAL-H-4-65
AD-629 281 FLD. 8/14

INS-RESEARCH-CONTRIBUTION-7
AD-629 784 FLD. 13/10

INS-RESEARCH-CONTRIBUTION-10
AD-629 785 FLD. 9/4

INS-RESEARCH-CONTRIBUTION-13
AD-629 786 FLD. 5/9

IU-65-35
AD-629 507 FLD. 8/14

J-162
AD-629 749 FLD. 6/13

J-207
AD-629 740 FLD. 6/16

JA-2904
AD-629 733 FLD. 20/14

JA-2930
AD-629 722 FLD. 7/2

JA-2947
AD-629 732 FLD. 20/14

JA-2973
AD-629 731 FLD. 3/1

JA-2996
AD-629 729 FLD. 20/3

LGO-839
AD-629 493 FLD. 8/7

LMSD-422121
AD-629 632 FLD. 22/3

LMSD-505945
AD-629 321 FLD. 16/2

M-66
AD-629 265 FLD. 12/1

MATHEMATICAL NOTE-433
AD-629 749 FLD. 12/1

ME937-6911
AD-629 302 FLD. 20/4

MET.E-1241-0965-FR
AD-629 267 FLD. 11/6

MIT-ASRL-TR-132-1
AD-629 572 FLD. 11/4

MIT-DNA-65-13
AD-629 508 FLD. 13/10

MIT-DSR-9170
AD-629 554 FLD. 20/4

ML-1372
AD-629 567 FLD. 20/5

ML-TR-65-82
AD-629 712 FLD. 7/4

MPL-1
AD-629 528 FLD. 5/10

MPL-2
AD-629 709 FLD. 5/10

MPL-U-49-62
AD-629 601 FLD. 13/10

MSAR-64-123
AD-629 556 FLD. 6/11

MSRR-93
AD-629 729 FLD. 5/1

MSRR-94
AD-629 730 FLD. 5/1

NA65H-913
AD-629 830 FLD. 5/8

NADC-AE-6509
AD-629 312 FLD. 20/3

NADC-AE-6520
AD-629 838 FLD. 10/2

NADC-ML-6505
AD-629 452 FLD. 5/10

NADC-MR-6504
AD-629 529 FLD. 12/1

NAVMED-MR004-14-1200-08
AD-629 753 FLD. 6/19

NAVMED-MR005.12-1408.7
AD-629 340 FLD. 6/5

NAVMED-MR005.12-1700.7
AD-629 339 FLD. 6/5

NAVMED-MR005.13-9010-502
AD-629 527 FLD. 6/6

NAVTRADEVCEN-IH-23
AD-629 531 FLD. 5/9

NAVWEPS-16-1-533
AD-629 315 FLD. 9/1

NAVWEPS-8832
AD-629 811 FLD. 10/3

NAVWEPS-8961
AD-629 700 FLD. 8/4

NAVWEPS-9009
AD-629 691 FLD. 11/6

NOISE-291-11
AD-629 283 FLD. 13/10

NOLTR-65-60
AD-629 590 FLD. 9/1

NOLTR-65-196
AD-629 498 FLD. 19/4

NOLTR-65-176
AD-629 510 FLD. 14/2

NOR-65-98(BLC-161)
AD-629 488 FLD. 20/4

NOR-65-271
AD-629 586 FLD. 17/9

NOTS-TP-2692-REV-2
AD-629 311 FLD. 14/2

NOTS-TP-3917
AD-629 700 FLD. 8/4

NOTS-TP-3988
AD-629 691 FLD. 11/6

NRL-1655
AD-629 709 FLD. 20/1

NRL-1658
AD-629 707 FLD. 20/3

NRL-6319
AD-629 591 FLD. 13/9

NRL-6321
AD-629 592 FLD. 22/2

NRL-6323
AD-629 499 FLD. 5/8

NRL-6324
AD-629 610 FLD. 7/4

NRL-6325
AD-629 429 FLD. 8/10

NRL-6326
AD-629 459 FLD. 17/7

NRL-6328
AD-629 593 FLD. 8/1

NRL-6329
AD-629 594 FLD. 11/8

NRL-6331
AD-629 532 FLD. 6/11

NRL-6332
AD-629 296 FLD. 7/2

NRL-6334
AD-629 293 FLD. 13/8

NRL-6339
AD-629 303 FLD. 8/1

NRL-6352
AD-629 223 FLD. 4/1

NRL-6363
AD-629 438 FLD. 13/13

NSAM-926
AD-629 527 FLD. 6/6

NWL-1999
AD-629 774 FLD. 4/2

NWL-2003
AD-629 459 FLD. 20/1

OAL-147-1
AD-629 598 FLD. 20/4

OCEANOGRAPHY CONTRIBUTION-2
AD-629 466 FLD. 8/10

ONR-RM-1
AD-629 499 FLD. 12/2

ONR-RM-2
AD-629 500 FLD. 12/2

ONR-RM-3
AD-629 501 FLD. 12/2

OSURF-104
AD-629 256 FLD. 5/10

P-204
AD-629 715 FLD. 19/4

P-3235
AD-629 431 FLD. 9/2

P-3246
AD-629 523 FLD. 22/4

P-3255
AD-629 775 FLD. 5/3

P-3257
AD-629 424 FLD. 12/2

P-3258
AD-629 797 FLD. 15/7

P-3261
AD-629 457 FLD. 15/7

P-3270
AD-629 776 FLD. 8/14

P-3271
AD-629 461 FLD. 16/4

P-3273
AD-629 460 FLD. 5/4

P-3274
AD-629 778 FLD. 14/1

P-3275
AD-629 777 FLD. 12/1

P-3276
AD-629 817 FLD. 12/1

PB-168 267
AD-629 560 FLD. 5/2

PE-TR-8110
AD-629 558 FLD. 20/5

PE-TR-8186
AD-629 301 FLD. 20/6

PIBAL-868
AD-629 551 FLD. 20/4

PIBMRI-1199-63
AD-629 265 FLD. 12/1

PIBMRI-1203-64
AD-629 266 FLD. 12/1

PIBMRI-1205-64
AD-629 307 FLD. 12/1

PIBMRI-1272-65
AD-629 843 FLD. 20/14

PIBMRI-1278-65
AD-629 297 FLD. 9/1

PRC-R-254
AD-629 252 FLD. 15/5

PUB. U-3127
AD-629 568 FLD. 3/3

Q763-1
AD-629 308 FLD. 9/5

R655D24
AD-629 472 FLD. 20/4

R-269
AD-629 255 FLD. 9/4

R-271
AD-629 604 FLD. 20/9

R-1781
AD-629 425 FLD. 19/1

R AND C-65-7-100
AD-629 443 FLD. 15/5

R-OU-157
AD-629 701 FLD. 15/3
AD-629 702 FLD. 15/3
AD-629 703 FLD. 15/3
AD-629 704 FLD. 15/3

RAC-1787-9FR
AD-629 612 FLD. 6/3

RAD-TR-65-24
AD-629 320 FLD. 20/13

RADC-TR-65-228
AD-629 791 FLD. 9/5

RADC-TR-65-263
AD-629 437 FLD. 9/2

RADC-TR-65-279
AD-629 550 FLD. 14/2

RADC-TR-65-283
AD-629 440 FLD. 17/9

RADC-TR-65-286
AD-629 360 FLD. 9/1

RADC-TR-65-330
AD-629 769 FLD. 14/4

RADC-TR-65-338
AD-629 698 FLD. 20/6

RADC-TR-65-366
AD-629 359 FLD. 20/5

RADC-TR-65-369
AD-629 361 FLD. 20/6

RADC-TR-65-375
AD-629 742 FLD. 14/5

RADC-TR-65-381
AD-629 605 FLD. 20/14

RADC-TR-65-395
AD-629 549 FLD. 9/1

RADC-TR-65-405-VOL-1
AD-629 606 FLD. 9/2

RADC-TR-65-519
AD-629 695 FLD. 9/1

RB-65-1
AD-629 516 FLD. 18/4

REF-65-44
AD-629 815 FLD. 8/3

REFERENCE-SIO-65-12
AD-629 601 FLD. 13/10

REICAL-93
AD-629 788 FLD. 18/8

RES. LAB. REPRINT-5192
AD-629 287 FLD. 7/4

RESEARCH CONTRIBUTION-1
AD-629 447 FLD. 5/1

RIA-65-1888
AD-629 574 FLD. 13/4

RIA-65-3029
AD-629 744 FLD. 11/10

RM-79
AD-629 254 FLD. 5/3

RM-294J

AD-624 771 FLD. 9/5

RM-4264-PR(SUPPL)
AD-624 818 FLD. 5/3

RM-4560-PR
AD-624 856 FLD. 5/1

RM-4571-PR
AD-624 310 FLD. 12/2

RM-4623-PR
AD-624 699 FLD. 5/3

RM-4795-PR
AD-624 808 FLD. 12/1

RM-4802-PR
AD-624 807 FLD. 12/1

RM-4808-PR
AD-624 463 FLD. 15/7

RM-4810-PR
AD-624 290 FLD. 9/2

RM-4814-PR
AD-624 495 FLD. 15/7

RMD-5065-03
AD-624 735 FLD. 11/10

RP-P-194
AD-624 370 FLD. 13/13

RR-65-4
AD-624 692 FLD. 5/9

RR-65-8
AD-624 530 FLD. 9/1

RR-65-11
AD-624 827 FLD. 13/9

RSIC-473
AD-624 800 FLD. 20/11

RSIC-485
AD-624 801 FLD. 20/13

SCIENTIFIC-3
AD-624 577 FLD. 12/2
AD-624 615 FLD. 22/2

SCIENTIFIC-4
AD-624 578 FLD. 12/2
AD-624 713 FLD. 3/2

SCIENTIFIC-8
AD-624 617 FLD. 9/1
AD-624 714 FLD. 7/4

SCIENTIFIC-13
AD-624 844 FLD. 8/7

SCIENTIFIC-262
AD-624 847 FLD. 20/14

SIO-REFERENCE-65-17
AD-624 826 FLD. 8/10

SR-4
AD-624 275 FLD. 3/2

SR-7
AD-624 276 FLD. 7/4

SR-93
AD-624 625 FLD. 2/4

SR-250
AD-624 393 FLD. 4/1

SR-252
AD-624 392 FLD. 4/1

SR-253
AD-624 319 FLD. 8/14

SRCR-65-9
AD-624 514 FLD. 20/3

SRDS-RD-65-73
AD-624 464 FLD. 1/2

SRL-65-5
AD-624 405 FLD. 7/3

SRR-65-8
AD-624 576 FLD. 5/9

SRR-66-6
AD-624 428 FLD. 5/9

SRR-66-8
AD-624 609 FLD. 5/9

SSD-TR-65-156
AD-624 534 FLD. 7/4

STB-66-13
AD-624 608 FLD. 5/9

SUDAER-223
AD-624 618 FLD. 16/1

SUDAER-241
AD-624 655 FLD. 22/3

T-1-SI
AD-624 841 FLD. 14/2

T-4-Y
AD-624 840 FLD. 6/12

T-A2049-26
AD-624 289 FLD. 13/9

TDR-669(9230-02)-4
AD-624 534 FLD. 7/4

TG-503
AD-624 476 FLD. 22/3

TG-517
AD-624 479 FLD. 22/1

TG-520
AD-624 475 FLD. 8/4

TI-03-65-97
AD-624 614 FLD. 9/5

TID-4500- 48TH ED.
AD-624 522 FLD. 18/3
AD-624 529 FLD. 18/3

TID-4500- 46TH ED.
AD-624 496 FLD. 18/3

TM-57-11-06
AD-624 321 FLD. 16/2

TM-65-41
AD-624 286 FLD. 20/6

TM-65-44
AD-624 746 FLD. 14/2

TM-65-49
AD-624 689 FLD. 9/3

TM-1662
AD-624 810 FLD. 14/1

TM-M-20/65
AD-624 458 FLD. 19/1

TN-6
AD-624 765 FLD. 20/6

TN-1965-42
AD-624 362 FLD. 9/2

TN-1965-48
AD-624 398 FLD. 22/2

TN-1965-53
AD-624 426 FLD. 12/1

TN-BN-423
AD-624 816 FLD. 20/10

TP-117
AD-624 543 FLD. 7/4

TR-1
AD-624 595 FLD. 7/4

TR-4
AD-624 268 FLD. 12/1

TR-8
AD-624 548 FLD. 9/2

TR-16
AD-624 291 FLD. 7/4
AD-624 553 FLD. 12/2

TR-17
AD-624 292 FLD. 7/4

TR-19
AD-624 314 FLD. 20/8
AD-624 803 FLD. 7/4

TR-25
AD-624 718 FLD. 20/3

TR-26
AD-624 719 FLD. 7/4

TR-27
AD-624 720 FLD. 20/3

TR-28
AD-624 721 FLD. 20/3

TR-65-3
AD-624 737 FLD. 21/8.2

TR-65-75
AD-624 262 FLD. 13/8

TR-65-2816
AD-624 819 FLD. 7/3

TR-111
AD-624 458 FLD. 12/1

TR-112
AD-624 554 FLD. 20/4

TR-127
AD-624 798 FLD. 13/3

TR-139
AD-624 535 FLD. 5/3

TR-751-5
AD-624 616 FLD. 1/2

TR-AE-6904
AD-624 446 FLD. 20/4

TR-EE-65-9
AD-624 555 FLD. 5/7

TR-R-406
AD-624 770 FLD. 13/3

TR-R-416
AD-624 708 FLD. 9/1

TR-R-423
AD-624 269 FLD. 11/6

TR-R-431
AD-624 799 FLD. 13/10

TRANS-278
AD-624 640 FLD. 8

TRANS-944
AD-624 432 FLD. 11/9

TRBS-PEL-4436-6003-SU-000
AD-624 564 FLD. 20/9

TS-65-3
AD-624 565 FLD. 21/4

TSEAL-696-42H
AD-624 633 FLD. 6/17

TSEAL-696-798
AD-629 635 FLD. 6/19

TT-65-64616
AD-629 289 FLD. 13/9

TT-65-64617
AD-629 290 FLD. 9/2

TT-65-64677
AD-629 932 FLD. 11/9

TT-65-64725
AD-629 939 FLD. 20/6

TT-65-64726
AD-629 962 FLD. 9/1

TT-65-64766
AD-629 575 FLD. 22/1

TT-65-64767
AD-629 584 FLD. 6/3

TT-65-64768
AD-629 569 FLD. 6/13

TT-65-64769
AD-629 570 FLD. 2/6

TT-65-64770
AD-629 571 FLD. 6/8

TT-65-64771
AD-629 585 FLD. 6/8

TT-65-64772
AD-629 640 FLD. 8

TT-65-64778
AD-629 687 FLD. 19/1

TT-65-64779
AD-629 690 FLD. 20/1

TT-65-64780
AD-629 729 FLD. 21/4

TT-65-64781
AD-629 725 FLD. 7/3

TT-65-64782
AD-629 726 FLD. 9/2

TT-65-64783
AD-629 727 FLD. 9/2

TT-65-64784
AD-629 728 FLD. 20/5

TT-65-64785
AD-629 743 FLD. 17/2

TT-65-64786
AD-629 750 FLD. 11/8

TT-65-64787
AD-629 751 FLD. 21/4

TT-65-64788
AD-629 752 FLD. 11/1

TT-65-64789
AD-629 758 FLD. 20/11

TT-65-64790
AD-629 759 FLD. 1/1

TT-65-64791
AD-629 760 FLD. 11/4

TT-65-64792
AD-629 761 FLD. 20/4

TT-65-64793
AD-629 767 FLD. 21/5

TT-65-64794
AD-629 800 FLD. 20/11

TT-65-64795
AD-629 801 FLD. 20/13

TT-65-64796
AD-629 797 FLD. 19/7

TT-65-64797
AD-629 820 FLD. 21/5

TT-65-64798
AD-629 821 FLD. 17/2

TT-65-64799
AD-629 809 FLD. 20/4

TT-65-64800
AD-629 859 FLD. 17/2.1

TT-65-64801
AD-629 835 FLD. 20/9

TT-65-64802
AD-629 836 FLD. 10/1

TT-65-64803
AD-629 841 FLD. 14/2

TT-65-64804
AD-629 840 FLD. 6/12

TT-65-64805
AD-629 849 FLD. 20/1

TT-65-64806
AD-629 850 FLD. 20/13

TT-65-64807
AD-629 851 FLD. 12/1

TT-65-64808
AD-629 852 FLD. 21/5

TT-65-64809
AD-629 853 FLD. 9/2

TT-65-64810
AD-629 854 FLD. 6/4

TT-65-64824
AD-629 824 FLD. 9/2

USA NLABS-FD-25
AD-629 306 FLD. 6/8

USAAVLABS-TR-64-68C
AD-629 762 FLD. 1/3

USAAVLABS-TR-64-68D
AD-629 763 FLD. 1/3

USAAVLABS-TR-64-68G
AD-629 813 FLD. 1/3

USAAVLABS-TR-64-68H
AD-629 814 FLD. 1/3

USAAVLABS-TR-64-68K
AD-629 716 FLD. 1/3

USAAVLABS-TR-64-68L
AD-629 822 FLD. 1/3

USNRDL-TR-914
AD-629 857 FLD. 18/4

USNRDL-TR-916
AD-629 497 FLD. 20/8

USNRDL-TR-920
AD-629 485 FLD. 6/18

[redacted]AL-TR-364/65
AD-629 491 FLD. 11/8

[redacted]DL-TR-2684
AD-629 693 FLD. 17/2.1

[redacted]L-TR-65-117
AD-629 320 FLD. 20/13

[redacted]R-1956
AD-629 695 FLD. 9/1

XAR-A-45
AD-629 913 FLD. 13/10

AD-FIELD INDEX

The fields/groups indicated here apply only to the Technical Abstract Bulletin Section (on white paper).

629 293	7/4
629 294	7/3
629 295	5/10
629 296	5/10
629 297	6/5
629 298	6/3
629 299	6/13
629 250	8/1
629 251	20/12
629 252	15/5
629 253	20/14
629 254	5/3
629 255	9/4
629 256	5/10
629 257	13/8
629 258	6/5
629 259	6/5
629 260	6/5
629 261	6/3
629 262	13/8
629 263	6/5
629 264	7/4
629 265	12/1
629 266	12/1
629 267	11/6
629 268	12/1
629 269	11/6
629 270	20/8
629 271	20/8
629 272	20/8
629 273	7/4
629 274	7/4
629 275	3/2
629 276	7/4
629 277	20/8
629 278	20/8
629 279	7/4
629 280	7/4
629 281	8/14
629 282	9/1
629 283	13/10
629 284	11/6
629 285	15/5
629 286	20/6
629 287	7/4
629 288	13/9
629 289	13/9
629 290	9/2
629 291	7/4
629 292	7/4
629 293	13/8
629 294	9/1
629 295	9/5
629 296	7/2
629 297	9/1
629 298	20/8
629 299	12/1
629 300	21/9.2
629 301	20/6
629 302	20/4
629 303	8/1
629 304	9/5
629 305	5/7
629 306	6/8
629 307	12/1
629 308	9/5
629 309	9/1
629 310	12/2
629 311	14/2
629 312	20/3
629 313	10/1
629 314	20/8
629 315	9/1
629 316	7/3
629 317	20/5
629 318	20/8
629 319	8/14
629 320	20/13
629 321	16/2
629 322	5/10
629 323	4/1
629 324	7/2
629 325	14/2
629 326	7/2
629 327	20/4
629 328	20/4
629 329	7/3
629 330	7/4
629 331	7/4
629 332	7/2
629 333	7/4
629 334	6/5
629 335	6/5
629 336	5/10
629 337	5/10
629 338	5/10
629 339	6/5
629 340	6/5
629 341	20/6
629 342	6/11
629 343	6/16
629 345	6/5
629 346	7/4
629 347	6/5
629 348	7/2
629 349	6/5
629 350	6/5
629 351	6/5
629 352	7/4
629 353	9/1
629 354	7/4
629 355	6/16
629 356	20/9
629 357	20/9
629 358	22/2
629 359	20/5
629 360	9/1
629 361	20/6
629 362	9/2
629 363	8/1
629 364	7/3
629 365	8/1
629 366	8/1
629 367	20/11
629 368	8/1
629 369	7/3
629 370	13/13
629 371	12/1
629 372	7/2
629 373	7/3
629 374	7/4
629 375	20/9
629 376	20/12
629 377	11/6
629 378	7/4
629 379	20/11
629 380	9/4
629 381	20/3
629 382	11/9
629 383	20/2
629 384	7/4
629 385	8/1
629 386	7/2
629 387	7/2
629 388	7/2
629 389	7/2
629 390	7/2
629 391	7/2
629 392	4/1
629 393	4/1
629 394	12/1
629 395	6/16
629 396	20/8
629 397	20/8
629 398	20/8
629 399	20/8
629 400	20/8
629 401	6/5
629 402	7/2
629 403	20/11
629 404	7/4
629 405	7/3
629 406	8/1
629 407	10/3
629 408	6/5
629 409	6/16
629 410	10/3
629 411	9/1
629 412	6/1
629 413	13/10
629 414	6/19
629 415	6/5
629 416	7/3
629 417	20/10
629 418	20/10
629 419	6/5
629 420	8
629 421	6/3
629 422	6/3
629 423	6/13
629 424	12/2
629 425	19/1
629 426	12/1
629 427	11/7
629 428	5/9
629 429	8/10
629 430	6/5
629 431	9/2
629 432	11/9
629 433	20/4
629 434	7/4
629 435	20/2
629 436	9/1
629 437	9/2
629 438	13/13
629 439	20/6
629 440	17/9
629 441	6/1
629 442	20/11
629 443	15/5
629 444	7/4
629 445	20/3
629 446	20/4
629 447	5/1
629 448	5/2
629 449	5/9
629 450	5/10
629 451	11/8
629 452	5/10
629 453	8/11
629 454	17/7
629 455	19/1
629 456	6/3
629 457	19/7
629 458	12/1
629 459	20/1
629 460	5/4
629 461	16/4
629 462	4/1
629 463	19/7
629 464	1/2
629 465	9/1
629 466	8/10
629 467	22/3
629 468	9/2
629 469	6/1
629 470	14/5
629 471	14/2
629 472	20/4
629 473	14/2
629 474	8/4
629 475	8/4
629 476	22/3
629 477	6/16
629 478	9/5
629 479	22/1
629 480	11/9
629 481	20/5
629 482	11/9
629 483	6/13
629 484	13/8
629 485	6/18
629 486	20/9
629 487	6/2
629 488	20/4
629 489	9/2
629 490	9/1
629 491	6/13
629 492	7/3
629 493	8/7
629 494	5/8
629 495	19/7
629 496	18/3
629 497	20/8
629 498	19/4
629 499	12/2
629 500	12/2
629 501	12/2
629 502	6/5
629 503	6/5
629 504	6/12
629 505	9/2
629 506	20/9
629 507	8/14
629 508	13/10
629 509	18/8
629 510	14/2
629 511	6/13
629 512	9/5
629 513	9/1
629 514	20/5
629 515	9/1
629 516	18/4
629 517	7/4
629 518	20/8
629 519	5/11
629 520	9/1
629 521	9/2
629 522	18/3
629 523	22/4
629 524	12/1
629 525	7/3
629 526	6/15
629 527	6/6
629 528	5/10
629 529	18/3
629 530	9/1
629 531	5/9
629 532	6/11
629 533	21/9.2
629 534	7/4
629 535	5/3
629 537	19/1
629 538	9/1
629 539	11/6
629 540	21/9.2
629 541	9/1
62[illegible] 542	20/13
629 543	7/4
629 544	11/10
629 545	20/12
629 546	14/2
62[illegible] 547	3/11
62[illegible] 548	9/2
629 549	9/1
62[illegible] 550	14/2
62[illegible] 551	20/4
62[illegible] 552	6/15
62[illegible] 553	12/2
62[illegible] 554	20/4
62[illegible] 555	5/7
629 556	6/11
629 558	20/5
629 559	18/8
629 560	5/2
629 561	9/1
629 562	20/12
629 563	20/9
629 564	20/9
629 565	21/4
629 566	9/1
629 567	20/5
629 568	3/3
629 569	6/13
629 570	2/6
629 571	6/8
629 572	11/4
629 573	5/9
629 574	13/4
629 575	22/1
629 576	5/9
629 577	12/2
629 578	12/2
629 579	1/4
629 580	20/4
629 581	22/1
629 582	13/8
629 583	9/1
629 584	6/3
629 585	6/8
629 586	17/9
629 587	14/2
629 588	9/1
629 589	10/3
629 590	9/1
629 591	13/9
629 592	22/2
629 593	8/1
629 594	11/8
629 595	7/4
629 596	20/2
629 597	5/10
629 598	20/4
629 599	18/4
629 600	6/5
629 601	13/10
629 602	20/14
629 603	9/5
629 604	20/9
629 605	20/14
629 606	9/2
629 607	19/1
629 608	9/9
629 609	9/9

624 610	7/4
624 611	20/11
624 612	6/3
624 613	9/1
624 614	9/5
624 615	22/2
624 616	1/2
624 617	9/1
624 618	16/1
624 619	6/5
624 620	6/3
624 621	6/5
624 622	6/12
624 623	6/5
624 624	6/13
624 625	2/4
624 626	6/19
624 627	4/2
624 628	20/14
624 629	8/11
624 630	17/9
624 631	20/8
624 632	22/3
624 633	6/17
624 634	6/17
624 635	6/19
624 636	14/2
624 637	20/8
624 638	20/8
624 639	20/2
624 640	8
624 641	7/2
624 642	9/5
624 643	17/2.1
624 644	20/11
624 645	5/9
624 646	20/13
624 647	6/16
624 648	5/4
624 649	6/3
624 650	5/4
624 651	11/6
624 652	13/11
624 653	5/9
624 654	17/2
624 655	22/3
624 656	5/4
624 657	8/1
624 658	9/2
624 659	8/13
624 660	20/13
624 661	17/7
624 662	6/5
624 663	6/16
624 664	5/1
624 665	4/2
624 666	5/4
624 667	20/9
624 668	22/2
624 669	17/2
624 670	5/10
624 671	13/2
624 672	12/2
624 673	12/2
624 674	12/2
624 675	12/2
624 676	12/2
624 677	15/1
624 678	17/2.1
624 679	15/3
624 680	6/5
624 681	22/3
624 682	9/5
624 683	20/4
624 684	18/14
624 685	1/3
624 686	20/11
624 687	19/1
624 688	13/10
624 689	9/3
624 690	20/1
624 691	11/6
624 692	5/9
624 693	9/4
624 694	7/3
624 695	9/1
624 696	17/2
624 697	17/2.1
624 698	20/6
624 699	5/3
624 700	8/4
624 701	15/3
624 702	15/3
624 703	15/3
624 704	15/3
624 705	5/10
624 706	15/3
624 707	20/3
624 708	9/1
624 709	20/1
624 710	17/2.1
624 711	4/1
624 712	7/4
624 713	3/2
624 714	7/4
624 715	19/4
624 716	1/3
624 717	5/10
624 718	20/3
624 719	7/4
624 720	20/3
624 721	20/3
624 722	7/2
624 723	20/3
624 724	21/4
624 725	7/3
624 726	9/2
624 727	9/2
624 728	20/5
624 729	5/1
624 730	5/1
624 731	3/1
624 732	20/14
624 733	20/14
624 734	20/6
624 735	11/10
624 736	10/2
624 737	21/8.2
624 738	19/4
624 739	6/16
624 740	6/16
624 741	6/5
624 742	14/5
624 743	17/2
624 744	11/10
624 745	12/1
624 746	14/2
624 747	5/9
624 748	9/1
624 749	6/13
624 750	11/8
624 751	21/4
624 752	11/1
624 753	6/19
624 754	6/11
624 755	17/2
624 756	15/5
624 757	6/16
624 758	20/11
624 759	1/1
624 760	11/4
624 761	20/4
624 762	1/3
624 763	1/3
624 764	1/3
624 765	20/6
624 766	6/19
624 767	21/5
624 768	10/3
624 769	14/4
624 770	13/3
624 771	9/5
624 772	11/6
624 773	13/7
624 774	4/2
624 775	5/3
624 776	8/14
624 777	12/1
624 778	14/1
624 779	5/9
624 780	5/9
624 781	5/9
624 782	6/16
624 783	6/19
624 784	13/10
624 785	9/4
624 786	5/9
624 787	18/8
624 788	18/8
624 789	20/9
624 790	6/16
624 791	9/5
624 792	20/3
624 793	5/10
624 794	6/19
624 795	6/19
624 796	6/19
624 797	15/7
624 798	13/3
624 799	13/10
624 800	20/11
624 801	20/13
624 802	7/4
624 803	7/4
624 804	6/13
624 805	6/5
624 806	6/5
624 807	12/1
624 808	12/1
624 809	20/4
624 810	14/1
624 811	10/3
624 812	9/2
624 813	1/3
624 814	1/3
624 815	8/3
624 816	20/10
624 817	12/1
624 818	5/3
624 819	7/3
624 820	21/5
624 821	17/2
624 822	1/3
624 823	20/2
624 824	20/12
624 825	14/2
624 826	8/10
624 827	13/9
624 828	9/1
624 829	9/2
624 830	5/8
624 831	7/4
624 832	6/16
624 833	7/4
624 834	21/2
624 835	20/9
624 836	10/1
624 837	12/1
624 838	10/2
624 839	14/5
624 840	6/12
624 841	14/2
624 842	12/1
624 843	20/14
624 844	8/7
624 845	20/5
624 846	11/7
624 847	20/14
624 848	5/10
624 849	20/1
624 850	20/13
624 851	12/1
624 852	21/5
624 853	9/2
624 854	6/4
624 855	4/1
624 856	5/1
624 857	18/4
624 858	9/1
624 859	17/2.1

1

NC
WA
07
ND

NC
N

AR
SR
D

NC
N

SD
b6
D

NC
AM
bC
ND

NC
N

ST
A
b7
D

NC
N

WI
IA
b7
TD

OTHER RESEARCH REPORTS AND RELATED MATERIAL

1. AERONAUTICS

N65-17212 **Field 1A, 20A**
CFSTI Prices: HC$2.00 MF$0.50
Wyle Labs, Inc., Huntsville, Ala.
AERODYNAMIC NOISE RESEARCH SUPPORT.
Quarterly progress rept. for Oct-Dec 64.
7 Jan 65, 47p
Contract NAS8 11308
NASA CR-60739
Distribution: No limitation.

Descriptors: (*Noise, Aerodynamic characteristics), (*Aerodynamic characteristics, Noise).

N65-17612 **Field 1A**
CFSTI Prices: HC$3.00 MF$0.50
National Aeronautics and Space Administration, Washington, D. C.
A SURVEY AND EVALUATION OF FLUTTER RESEARCH AND ENGINEERING.
5 Oct 56, 56p Research memo. no. NACA-RM-56112
Distribution: No limitation.

Descriptors: (*Flutter, Reviews).

N65-25548 **Field 1C, 1D**
CFSTI Prices: HC$2.00 MF$0.50
National Aeronautics and Space Administration, Langley Station, Va. Langley Research Center.
STABILITY CHARACTERISTICS OF A TANDEM-ROTOR TRANSPORT HELICOPTER AS DETERMINED BY FLIGHT TEST,
by James R. Kelly and Matthew M. Winston. Jun 65, 30p NASA-TN-D-2847
Distribution: No limitation.

Descriptors: (*Helicopters, Stability).

N65-27396 **Field 1A**
CFSTI Prices: HC$3.00 MF$0.75
Astro Research Corp., Santa Barbara, Calif.
MECHANICS OF A CONED ROTATING NET,
by Richard H. MacNeal. Jul 65, 67p
Contract NAS7 272
NASA CR-248
Distribution: No limitation.

Descriptors: (*Aerodynamic control surfaces, Nets), (*Nets, Drag parachutes).

N65-27814 **Field 1D**
CFSTI Prices: HC$1.00 MF$0.50
National Aeronautics and Space Administration, Langley Station, Va. Langley Research Center.
STATE-VECTOR CONTROL APPLIED TO LATERAL STABILITY OF HIGH-PERFORMANCE AIRCRAFT,
by Waldo I. Oehman and Jerrold H. Suddath. Jul 65, 16p NASA-TN-D-2894
Distribution: No limitation.

Descriptors: (*Thrust vector control systems stability), (*Thrust augmentation, Stability).

N65-29844 **Field 1A**
CFSTI Prices: HC$1.00 MF$0.50
National Aeronautics and Space Administration, Langley Station, Hampton, Va. Langley Research Center.
WIND-TUNNEL PRESSURE MEASUREMENTS IN THE WAKE OF A CONE-CYLINDER MODEL AT MACH NUMBERS OF 2.30 AND 4.65,
by John T. McShera, Jr. Aug 65, 10p NASA-TN-D-2928
Distribution: No limitation.

Descriptors: (*Conical bodies, Wake), (*Cylindrical bodies, Wake).

N65-30399 **Field 1A**
CFSTI Prices: HC$1.00 MF$0.50
National Aeronautics and Space Administration, Moffett Field, Calif. Ames Research Center.
THE EFFECT OF SIMULATED ABLATION-GAS INJECTION ON THE SHOCK LAYER OF BLUNT BODIES AT MACH NUMBERS OF 3 AND 5,
by George E. Kaattari. Aug 65, 14p NASA-TN-D-2954
Distribution: No limitation.

Descriptors: (*Blunt bodies, Shock waves), (*Ablation, Blunt bodies).

N65-31576 **Field 1A**
CFSTI Prices: HC$2.00 MF$0.50
National Aeronautics and Space Administration, Langley Station, Hampton, Va. Langley Research Center.
MAXIMUM LIFT-DRAG-RATIO CHARACTERISTICS OF RECTANGULAR AND DELTA WINGS AT MACH 6.9,
by Jim A. Penland. Aug 65, 46p NASA-TN-D-2925
Distribution: No limitation.

Descriptors: (*Wings, Aerodynamic characteristics), (*Lift, Wings), (*Drag, Wings).

N65-31577 **Field 1A**
CFSTI Prices: HC$3.00 MF$0.75
National Aeronautics and Space Administration, Langley Station, Hampton, Va. Langley Research Center.
FAVORABLE INTERFERENCE EFFECTS ON MAXIMUM LIFT-DRAG RATIOS OF HALF-CONE DELTA-WING CONFIGURATIONS AT MACH 6.86,
by David E. Fetterman. Aug 65, 84p NASA-TN-D-2942
Distribution: No limitation.

Descriptors: (*Delta wings, Aerodynamic characteristics).

N65-31646 **Field 1A**
CFSTI Prices: HC$2.00 MF$0.50
National Aeronautics and Space Administration, Langley Station, Hampton, Va. Langley Research Center.
STUDIES RELATING TO THE ATTAINMENT OF HIGH LIFT-DRAG RATIOS AT HYPERSONIC SPEEDS,
by David E. Fetterman, Arthur Henderson, Jr., Mitchel H. Bertram, and Patrick J. Johnston. Aug 65, 32p NASA-TN-D-2956
Distribution: No limitation.

Descriptors: (*Hypersonic flight, Aerodynamic characteristics).

Patent Design 202,839 **Field 1C**
AIRCRAFT.
Patent assigned to NASA,
by Adrien E. Anderson, Woodrow L. Cook, James C. Daugherty, James L. Jones, Jr., and David G. Koenig. 9 Nov 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Transport planes, Design), Delta wings, Canard configuration, Patents, Fuselages.

The aircraft is a large ship designed for passenger or cargo transportation. The structure includes a long cigar-shaped fuselage, a delta-shaped supportingcontrol structure aft of the flight cabin, delta-shaped wing structure and tail structure. Four engines are positioned rearwardly of the delta-shaped wings.

SC-TM-65-218 **Field 1A, 19D, 20D**
CFSTI Prices: HC$4.00 MF$0.75
Oklahoma State Univ., Stillwater.
TRANSIENT BASE PRESSURE STUDY OF AN AXISYMMETRIC SUPERSONIC MISSILE FLYING HEAD-ON THROUGH A BLAST WAVE,
by G. W. Zumwalt and H. H. Tang. May 65, 123p
Contract AT (29-1)-789
Distribution: No limitation.

Descriptors: (*Supersonic flight, Shock waves), (*Shock waves, Supersonic flight).

UCRL-7807 **Field 1A**
CFSTI Prices: HC$2.00 MF$0.50
Lawrence Radiation Lab., Univ. of California, Livermore.
THE AERODYNAMIC HEATING OF A VEHICLE TRAVELING AT SUPERSONIC VELOCITIES THROUGH A COMPRESSIBLE FLUID,
by John Harri. 23 Jul 64, 44p
Contract W-7405-eng-48
Distribution: No limitation.

Descriptors: (*Supersonic flight, Aerodynamic heating), (*Aerodynamic heating, Supersonic flight), (*Compressible flow, Aerodynamic heating).

2. AGRICULTURE

NYO-2043-108 **Field 2A, 6R**
CFSTI Prices: HC$4.00 MF$1.00
Inter-American Inst. of Agricultural Sciences. Turbialba (Costa Rica).
THE APPLICATION OF NUCLEAR ENERGY TO AGRICULTURE.
Annual rept.,
by Carl C. Moh. 1 Jul 65, 112p
Contract AT (30-1)-2043
Distribution: No limitation.

Descriptors: (*Agriculture, Nuclear industrial applications).

NYO-2744-26 **Field 2A, 6C**
CFSTI Prices: HC$1.00 MF$0.50
Pennsylvania State Univ., University Park. Dept. of Agronomy.
THE INHERITANCE AND CHARACTERISTICS OF DIFFERENTIAL ELEMENT ACCUMULATION BY MAIZE WITH PARTICULAR EMPHASIS ON STRONTIUM AND CALCIUM.
Annual progress rept.
May 65, 18p
Contract AT (30-1)-2744
Distribution: No limitation.

Descriptors: (*Corn, Growth substances).

3. ASTRONOMY AND ASTROPHYSICS

BNL-9119 **Field 3B, 18D, 20H**
CFSTI Prices: HC$1.00 MF$0.50
Brookhaven National Lab., Upton, N. Y.

798-319 O - 66 - 13

SOLAR NEUTRINO DETECTION BY THE C137-Ar37 METHOD,
by Raymond Davis, Jr. and Don S. Harmer. 1964, 17p CONF-650111-4
Contract AT(30-2)-GEN-16
Presented at Cern Informal Neutrino Conference, Geneva. Distribution: No limitation.

Descriptors: (*Solar radiation, Neutrinos), (*Neutrinos, Radiation measurement systems).

N65-16330 **Field 3A, 14B**
CFSTI Prices: HC$4.00 MF$0.75
Colorado Univ., Boulder. Lab. for Atmospheric and Space Physics.
A HIGH RESOLUTION ECHELLE SPECTROPHOTOMETER FOR THE SOLAR ULTRAVIOLET.
Scientific rept. no. 2 (Final), Aug 59-Sep 62,
by W. A. Rense, C. E. Shelden, and E. P. Todd. Jul 63, 118p
Contracts NASw89, NASr86
NASA CR1/253152
Distribution: No limitation.

Descriptors: (*Spectrophotometers, Solar radiation), (*Solar radiation, Ultraviolet radiation).

N65-16492 **Field 3B, 20I, 22A**
CFSTI Prices: HC$2.00 MF$0.50
Massachusetts Inst. of Tech., Cambridge.
VELOCITY DISTRIBUTIONS OF THE INTERPLANETARY PLASMA DETECTED BY EXPLORER 10,
by F. Scherb. 1963, 48p
NSG386
NASA CR-55557
Distribution: No limitation.

Descriptors: (*Interstellar matter, Plasma medium), (*Velocity, Interstellar matter).

N65-17216 **Field 3B, 7D**
CFSTI Prices: HC$3.00 MF$0.75
Geophysics Corp. of America, Bedord, Mass.
MASS SPECTROMETER INSTRUMENTATION FOR THE ANALYSIS OF THE MARTIAN ATMOSPHERE.
Final rept.,
by R. F. K. Herzog and W. P. Poschenrieder. 12 Dec 62, 87p GCA-62-17-G
Contracts NAS7 100, JPL950328
NASA CR-60760
Distribution: No limitation.

Descriptors: (*Mars, Planetary atmospheres), (*Planetary atmospheres, Mass spectroscopy).

N65-17263 **Field 3B, 14B, 20F**
CFSTI Prices: HC$1.00 MF$0.50
Geophysics Corp. of America, Bedford, Mass.
PLANATARY AERONOMY IV: THE DUOPLASMATRON AS A VACUUM ULTRAVIOLET LIGHT SOURCE.
Technical rept.,
by J. A. R. Samson and H. J. Liebl. Sep 63, 20p Rept. no. GCA-TR-62-8-N
Contract NASw395
NASA CR-16
Submitted for publication to the Review of Scientific Instruments. Distribution: No limitation.

Descriptors: (*Planetary atmospheres, Ultraviolet radiation), (*Ultraviolet radiation, Sources).

Identifiers: Duoplasmatrons.

N65-17264 **Field 3B, 14B, 20F**
CFSTI Prices: HC$3.00 MF$0.50
Geophysics Corp. of America, Bedford, Mass.
PLANATARY AERONOMY V: VACUUM ULTRAVIOLET LIGHT SOURCES.
Technical rept.,
by J. A. R. Samson. Sep 63, 59p Rept. no. GCA-TR-62-9-N
Contract NAS2395
NASA CR-17
Distribution: No limitation.

Descriptors: (*Planetary atmospheres, Ultraviolet radiation), (*Ultraviolet radiation, Sources).

N65-17265 **Field 3B, 7E**
CFSTI Prices: HC$1.00 MF$0.50
Geophysics Corp. of America, Bedford, Mass.
PLANATARY AERONOMY I: ABSORPTION AND PHOTOIONIZATION COEFFICIENTS OF PROPYLENE AND BUTENE-1 IN THE VACUUM ULTRAVIOLET.
Technical rept.,
by J. A. R. Samson, F. F. Marmo, and K. Watanabe. Sep 63, 19p Rept. no. GCA-TR-62-4-N
Contract NASw395
NASA CR-18
Also published in J. Chem. Phys. v36 p783 1962. Distribution: No limitation.

Descriptors: (*Planetary atmospheres, Ultraviolet radiation), (*Alkenes, Ultraviolet radiation), (*Ultraviolet radiation, Alkenes).

N65-21758 **Field 3A, 22B**
CFSTI Prices: HC$1.00 MF$0.50
Virginia Univ., Charlottesville. Dept. of Physics.
A PROPOSED ORBITING X-RAY TELESCOPE,
by K. Ziock. 5 May 64, 11p
Grant NsG578
NASA CR-56815
Present at the Spring Meeting of the Am. Phys. Soc., 1964, Washington, D. C. 27-30 Apr 64. Distribution: No limitation.

Descriptors: (*Telescopes, X rays), (*Satellites (Artificial), Telescopes).

N65-22203 **Field 3B**
CFSTI Prices: HC$1.00 MF$0.50
Jet Propulsion Lab., California Inst. of Tech., Pasadena.
VENUS, RECENT PHYSICAL DATA FOR. ARTICLE FOR ANNUAL SUPPLEMENTARY VOLUME TO THE ENCYCLOPAEDIC DICTIONARY OF PHYSICS (PERGAMON PRESS),
by L. D. Kaplan. Jun 64, 6p
NASA CR-56851
Distribution: No limitation.

Descriptors: (*Venus (Planet), Scientific research).

N65-24565 **Field 3B**
CFSTI Prices: HC$1.00 MF$0.50
National Aeronautics and Space Administration, Huntsville, Ala. George C. Marshall Space Flight Center.
THE THERMAL ENVIRONMENT OF THE TERRESTRIAL PLANETS (SUPPLEMENT 5),
by Klaus Schocken. 28 Apr 65, 20p NASA-TMX-53241
Distribution: No limitation.

Descriptors: (*Planetary atmospheres, Temperature).

N65-27366 **Field 3B**
CFSTI Prices: HC$1.00 MF$0.50
National Aeronautics and Space Administration, Inst. for Space Studies, New York, N. Y.
COOLING OF NEUTRON STARS,
by A. G. W. Cameron and Sachiko Tsuruta. 1965, 16p NASA-TMX-56594
Research conducted in cooperation with Smithsonian Astrophysical Observatory, Cambridge, Mass. Distribution: No limitation.

Descriptors: (*Stars, Cooling), (*Neutrons, Stars).

N65-27383 **Field 3B, 20F, 7D**
CFSTI Prices: HC$4.00 MF$1.00
University of Western Ontario, London.
INTENSITY MEASUREMENTS OF THE LYMANBIRGEHOPFIELD SYSTEM OF NITROGEN.
Doctoral thesis,
by Donald James McEwen. 1965, 140p
Grants N5G349, AF AFOSR62 236
NASA CR-63641
Distribution: No limitation.

Descriptors: (*Nitrogen, Line spectrum), (*Sun, Line spectrum), (*Line spectrum, Intensity).

N65-28641 **Field 3B, 22A**
CFSTI Prices: HC$3.00 MF$0.75
National Aeronautics and Space Administration, Moffett Field, Calif. Ames Research Center.
A WIDE-RANGE PIEZOELECTRIC MOMENTUM TRANSDUCER FOR MEASURING MICROMETEOROID IMPACTS,
by Vernon L. Rogallo and Frank Neuman. Jul 65, 60p NASA-TN-D-2938
Distribution: No limitation.

Descriptors: (*Meteors, Counting methods), (*Piezoelectric transducers, Space probes).

N65-30169 **Field 3B, 22B, 14E**
CFSTI Prices: HC$2.00 MF$0.50
National Aeronautics and Space Administration, Cleveland, Ohio. Lewis Research Center.
SIGNIFICANCE OF PHOTOGRAPHIC METEOR DATA IN THE DESIGN OF METEOROID PROTECTION FOR LARGE SPACE VEHICLES,
by Nestor Clough and Seymour Lieblein. Aug 65, 41p NASA-TN-D-2958
Distribution: No limitation.

Descriptors: (*Meteors, Photographic techniques), (*Spacecraft, Meteors).

N65-30726 **Field 3B**
CFSTI Prices: HC$3.00 MF$0.75
GCA Corp., Bedford, Mass.
PLANETARY METEOROLOGY,
by George Ohring, Wen Tang, and Joseph Mariano. Aug 65, 88p
Contract NASw975
NASA CR-280
Distribution: No limitation.

Descriptors: (*Planets, Meteorology), (*Planetary atmospheres, Scientific research).

N65-30731 **Field 3B**
CFSTI Prices: HC$2.00 MF$0.50
National Aeronautics and Space Administration, Langley Station, Hampton, Va. Langley Research Center.
LUMINOUS EFFICIENCY OF AN ARTIFICIAL METEOR AT 11.9 KILOMETERS PER SECOND,
by Wendell G. Ayers. Aug 65, 36p NASA-TN-D-2931
Distribution: No limitation.

Descriptors: (*Meteors, Luminescence), (*Atmosphere entry, Meteors).

N65-30733 **Field 3B**
CFSTI Prices: HC$1.00 MF$0.50
National Aeronautics and Space Administration, Greenbelt, Md. Goddard Space Flight Center.
A SURVEY OF THE METHODS DEVELOPED FOR THE INVERSION OF THE RADIATIVE TRANSFER PROBLEM FOR PLANETARY ATMOSPHERES,
by Barney J. Conrath. Aug 65, 16p NASA-TN-D-2940
Distribution: No limitation.

Descriptors: (*Planetary atmospheres, Radiation (Heat transfer)), (*Thermodynamics, Planetary atmospheres).

4. ATMOSPHERIC SCIENCES

BNL-914 **Field 4B**
CFSTI Prices: HC$5.00 MF$1.00
Brookhaven National Lab., Upton, N. Y.
CONFERENCE ON AEC METEROLOGICAL ACTIVITIES, MAY 19-22, 1964,
ed. by Irving A. Singer, Maynard E. Smith, and Eugene W. Bierly. 1964, 189p CONF-640511
Contract AT(30-2)-GEN-16
Distribution: No limitation.

Descriptors: (*Meterology, Nuclear physics laboratories), (*Symposia, Meterology).

BNWL-103 **Field 4B, 4A**
CFSTI Prices: HC$2.00 MF$0.50
Battelle-Northwest, Richland, Wash. Pacific Northwest Lab.
FIELD TESTING OF A FLUORESCEIN-ZINC SULFIDE DUAL ATMOSPHERIC TRACER TECHNIQUE,
by P. W. Nickola. Aug 65, 29p
Contract AT (45-1)-1830
Distribution: No limitation.

Descriptors: (*Atmosphere, Tracer studies), (*Tracer studies, Atmosphere).

Identifiers: Fluorescein, Zinc sulfide.

LA-DC-6509 **Field 4A**
CFSTI Prices: HC$1.00 MF$0.50
Los Alamos Scientific Lab., N. Mex.
DENSITY OF THE IONIZED UPPER ATMOSPHERE TO 5500 KILOMETERS,
by David N. Anderson, Willard H. Bennett, and Leslie C. Hale. 1964, 18p
Contract W-7405-eng-36
Distribution: No limitation.

Descriptors: (*Upper atmosphere, Density).

N65-16491 **Field 4A, 20H**
CFSTI Prices: HC$2.00 MF$0.50
California Univ., La Jolla.
THE POSITRON-ELECTRON RATIO OF PRECIPITATING ELECTRONS,
by L. E. Peterson. 1963, 38p
Contracts NASW56, NSC31863
NASA CR-53791
Distribution: No limitation.

Descriptors: (*Electrons, Positrons), (*Atmospheric electricity, Electrostatic precipitation).

N65-17277 **Field 4B**
CFSTI Prices: HC$1.00 MF$0.50
Stanford Research Inst., Menlo Park, Calif.
PRECIPITATION OBSERVATIONS FROM SATELLITES,
by A. S. Dennis. 1963, 8p
Contract NASr49 06
NASA CR-60782
Presented at the Annual Meeting of the Pacific Division, American Association for the Advancement of Science (44th), Stanford, Calif., 19 Jun 63. Distribution: No limitation.

Descriptors: (*Atmospheric precipitation, Meteorological satellites).

N65-17404 **Field 4B, 22B**
CFSTI Prices: HC$3.00 MF$0.75
Stanford Research Inst., Menlo Park, Calif.
LIGHTNING OBSERVATIONS FROM SATELLITES.
Final rept.,
by Arnett S. Dennis. Dec 64, 94p
Contract NASr49 18,
Proj. SR14877
NASA CR-60806
Distribution: No limitation.

Descriptors: (*Lightning, Meteorological satellites).

N65-19857 **Field 4A**
CFSTI Prices: HC$3.00 MF$0.50
Smithsonian Institution, Cambridge, Mass. Astrophysical Observatory.
STATIC DIFFUSION MODELS OF THE UPPER ATMOSPHERE WITH EMPIRICAL TEMPERATURE PROFILES,
by Luigi G. Jacchia. 30 Dec 64, 56p Special rept. SAO-SR-170
Grant NsG 87-60
NASA CR-57236
Distribution: No limitation.

Descriptors: (*Upper atmosphere, Atmosphere models), (*Diffusion, Atmosphere models).

N65-25011 **Field 4A, 22A**
CFSTI Prices: HC$6.00 MF$1.50
National Aeronautics and Space Administration, Huntsville, Ala. George C. Marshall Space Flight Center.
A BIBLIOGRAPHY CONCERNING ASPECTS OF THE METEOROID HAZARD,
by John B. Gayle, Charles C. Dalton, Henry L. Martin, William D. Murphree, and Charlotte F. Shenk. 1 Apr 63, 288p Rept. nos. NASA-TM-X-56505; MDWG-63-2
Distribution: No limitation.

Descriptors: (*Meteorites, Bibliographies), (*Hazards, Meteorites).

N65-27375 **Field 4B**
CFSTI Prices: HC$1.00 MF$0.50
Cambridge Systems, Inc., Newton, Mass.
DESIGN AND TESTING OF AN AEROSPACE DEW POINT HYGROMETER.
Final rept.
2 Nov 64, 23p
Contract NAS9 2917
NASA CR-63620
Distribution: No limitation.

Descriptors: (*Hygrometers, Dew point), (*Astronautics, Hygrometers).

N65-27514 **Field 4B, 20F**
CFSTI Prices: HC$6.00 MF$1.25
National Aeronautics and Space Administration, Greenbelt, Md. Goddard Space Flight Center.
TIROS VII RADIATION DATA CATALOG AND USERS' MANUAL, VOLUME II.
Rept. for 1 Oct 63-29 Feb 64.
31 Dec 64, 205p NASA-CR-63652
Distribution: No limitation.

Descriptors: (*Meteorological satellites, Optical scanning), (*Radiometers, Meteorological satellites).

N65-27516 **Field 4A**
CFSTI Prices: HC$1.00 MF$0.50
Stanford Univ., Calif. Stanford Electronics Labs.
RADAR MEASUREMENTS OF THE TOTAL CISLUNAR ELECTRON CONTENT.
Technical rept.,
by H. T. Howard, V. R. Eshleman, G. H. Barry, and R. B. Fenwick. May 65, 22p Rept. nos. TR-8, SU-SEL-65-052
Grant NsG377
NASA CR-63656
Distribution: No limitation.

Descriptors: (*Electron density, Space environmental conditions), (*Atmospheric sounding, Radar reflections), (*Radar reflections, Atmospheric sounding).

N65-30732 **Field 4B, 20D**
CFSTI Prices: HC$3.00 MF$0.75
National Aeronautics and Space Administration, Langley Station, Hampton, Va. Langley Research Center.
WIND VELOCITY PROFILES MEASURED BY THE SMOKE-TRAIL METHOD AT WALLOPS ISLAND, VIRGINIA, 1959 TO 1962,
by Robert W. Miller, Robert M. Henry, and Mickey G. Rowe. Aug 65, 62p NASA-TN-D-2937
Distribution: No limitation.

Descriptors: (*Wind, Flow visualization), (*Flow visualization, Atmospheric motion).

PB-168 392 **Field 4B, 12A**
CFSTI Prices: HC$1.00 MF$0.50
Meteorological Research Inst., Tokyo (Japan).
PREDICTION OF MOVEMENTS AND SURFACE PRESSURES OF TYPHOON CENTERS IN THE FAR EAST BY STATISTICAL METHODS.
Scientific rept.,
by H. Arakawa. May 61, 21p Scientific-5
Contract Cwb-9933
NHRP 43
Distribution: No limitation.

Descriptors: (*Tropical cyclones, Air mass analysis), (*Statistical processes, Air mass analysis), (*Weather forecasting, Tropical cyclones), (*Marine meteorology, Tropical cyclones), Storms, Pacific Ocean, Meteorological parameters, Mathematical prediction, Japan.

5. BEHAVIORAL AND SOCIAL SCIENCES

BNWL-115 **Field 5B, 6C**
CFSTI Prices: HC$5.00 MF$1.00
Battelle-Northwest, Richland, Wash. Pacific Northwest Lab.
A SELECTED LIST OF REFERENCES (1960-MAY 1965) ON SWINE IN BIOMEDICAL RESEARCH,
by J. C. Pakas, and L. K. Bustad. Jun 65, 145p

Contract AT (45-1)-1830
Distribution: No limitation.

Descriptors: (*Swine, Medical research), (*Biological laboratories, Swine).

DP-970 **Field 5B, 9B**
CFSTI Prices: HC$3.00 MF$0.50
Du Pont De Nemours (E. I.) and Co., Aiken, S. C. Savannah River Lab.
A COMPUTER PROGRAM FOR CIRCULATION OF LIBRARY JOURNALS,
by Margaret W. Skelton and Richard R. Haefner. Jun 65, 54p
Contract AT (07-2)-1
Distribution: No limitation.

Descriptors: (*Programming (Computers), Libraries), (*Periodicals, Documentation).

N65-19894 **Field 5D, 5K**
CFSTI Prices: HC$2.00 MF$0.50
George Washington Univ., Washington, D. C.
SCIENCE IN NATIONAL POLICY. A PRELIMINARY INQUIRY.
Paper no. 1,
by Vincent P. Rock. Nov 64, 43p
NASA CR-57428
Distribution: No limitation.

Descriptors: (*Political science, United States), (*Social sciences, United States).

N65-22190 **Field 5E**
CFSTI Prices: HC$1.00 MF$0.50
National Aeronautics and Space Administration, Washington, D. C.
HUMAN FACTORS IN ELECTRONICS,
by Eugene B. Konecci. 1964, 6p NASA-TM-X-51735
Distribution: No limitation.

Descriptors: (*Human engineering, Electronics), (*Electronics, Human engineering).

N65-27388 **Field 5F, 5J**
CFSTI Prices: HC$3.00 MF$0.75

Research Lab. of Electronics, Mass. Inst. of Tech., Cambridge.
THE LOGICAL STRUCTURE OF MIND. AN INQUIRY INTO THE PHILOSOPHICAL FOUNDATION OF PSYCHOLOGY AND PSYCHIATRY,
by Warren S. McCulloch and Eilhard von Domarus. 1965, 66p
Contract DA36 039 AMC03299E, Grant NSF GP2495
NASA CR-63609
Research conducted in cooperation with Rockland State Hospital, N. Y. Distribution: No limitation.

Descriptors: (*Psychology, Theory), (*Psychiatry, Theory).

Identifiers: Philosophy.

N65-27389 **Field 5C, 15E**
CFSTI Prices: HC$2.00 MF$0.50
Washington Univ., St. Louis, Mo. Dept. of Economics.
EMPLOYMENT IMPACTS OF DEFENSE EXPENDITURES AND OBLIGATIONS,
by Edward Greenberg. 29 Apr 65, 28p
NASA CR-63613
Distribution: No limitation.

Descriptors: (*Economics, Armed forces procurement), (*Armed forces procurement, Economics).

PB-168 548 **Field 5G**
CFSTI Prices: HC$1.00 MF$0.50
Bolt, Beranek and Newman, Inc., Cambridge, Mass.
SYNTACTIC ANALYSIS OF ENGLISH BY COMPUTER: A SURVEY,
by Daniel G. Bobrow. 1964, 23p
Distribution: No limitation.

Descriptors: (*English language, Computational linguistics), (*Syntax, Analysis), Semantics, State-of-theart reviews, Grammars, Transformational grammars.

Identifiers: Words, Sentences, Tree diagrams (Linguistics).

The review begins with a survey of the determination of classes among English words. Most programs doing syntactic analysis of English use a dictionary lookup operation to find possible classifications of words and then resolve ambiguities during the parsing operation. A survey is also given of those theories of grammar which serve as a basis for syntactic processing by computer. The forms of the rules for each grammar and a description of the syntactic structure associated with a sentence by each processor are given; reference is made to computer programs which have been written, and goals and present success of these programs are reviewed.

PB-168 577 **Field 5G, 9B**
CFSTI Prices: HC$3.00 MF$0.75
Bunker-Ramo Corp., Canoga Park, Calif.
COMPUTER-AIDED RESEARCH IN MACHINE TRANSLATION D199 ENGLISH ARTICLE INSERTION: FURTHER STUDIES.
Progress rept. no. 11,
by Jocelyn Brewer. 20 Sep 65, 88p
Contract NSF-C372
Distribution: No limitation.

Descriptors: (*Machine translation, English language), (*English language, Machine translation), (*Grammars, English language), Linguistics, Computers, Russian language.

Identifiers: Articles (Grammar), Nouns.

For an 8000-word sample of English text, it was found possible to provide at least an acceptable article for more than 90 per cent of the noun occurrences at a 'cost' of providing a dual article for half of the occurrences. This can be achieved by making use of the following relatively simple criteria for article selection: (1) Prior classification of nouns according to the articles they are expected to take in natural language text, (2) Grammatical number of the noun, (3) Presence or absence of a following 'of' phrase, (4) Excluding all articles for nouns preceded by certain specified modifiers and prescribing a single article to accompany certain other modifiers. A study of noun classification indicates that it can be done with acceptable consistency and reliability. In order to determine how further improvement can be achieved, both in terms of fewer unacceptable insertions and in terms of fewer dual articles, we have inquired into the semantic role of articles and the kind of linguistic elements which affect their use.

PB-168 595 **Field 5A**
CFSTI Prices: HC$1.00 MF$0.50
Alfred P. Sloan School of Management, Mass. Inst. of Tech., Cambridge.
RESEARCH PROGRAM ON THE MANAGEMENT OF SCIENCE AND TECHNOLOGY. TIME ALLOCATION AMONG THREE TECHNICAL INFORMATION CHANNELS BY R AND D ENGINEERS.
Working paper,
by Thomas J. Allen and Maurice P. Andrien, Jr.
Aug 65, 25p 131-65
Grants Nsg-235-62, NSF-GN-233
Distribution: No limitation.

Descriptors: (*Research program administration, Management engineering), (*Scheduling, Research program administration), Job analysis, Information retrieval, Government employees, Scientific personnel, Engineering personnel, Data, Time, Problem solving.

Four government funded parallel research and development projects are examined to determine the manner in which engineers and scientists allocate their time, and the effect of this allocation on the outcome of the projects. The use of matched pairs of projects allows the relative evaluation of outcomes by technical monitors in the customer agencies. The percent of total time spent in three categories of information gathering (outside consultation, staff consultation, and literature search) varies significantly over the life of a project. Higher rated teams are relatively stable in all phases of information gathering while lower rated teams initially spend far more time gathering information than they do in the later stages and fluctuate more throughout the project. Subsystems characterized by greater uncertainty receive a higher percent of information gathering time than subsystems where uncertainty is lower. (Author)

PB-168 598 **Field 5B**
CFSTI Prices: HC$1.00 MF$0.50
Lehigh Univ., Bethlehem, Pa.
STUDY OF THEORIES AND MODELS OF INFORMATION STORAGE AND RETRIEVAL.
Final rept., 1 Jun 62-31 May 64,
by Donald J. Hillman. 15 Jun 64, 6p
Grant NSF-G24070
See PB-163 256, PB-163 257, PB-163 476, PB-163 748, PB-163 749, PB-163 750, AD-283 460.
Distribution: No limitation.

Descriptors: (*Information retrieval, Theory), Mathematical models, Subject indexing, Classification, Reports, Algebras, Computer logic.

Identifiers: Coordinate indexing, Relevance (Documentation).

PB-168 599 *Field 5B, 12B*
CFSTI Prices: HC$1.00 MF$0.50
Johns Hopkins Univ., Baltimore, Md.
AN OPERATIONS RESEARCH AND SYSTEMS ENGINEERING STUDY OF A UNIVERSITY LIBRARY.
Progress rept.,
by Benjamin F. Courtright, Jr. Jun 64, 21p
Grant NSF-GN-31
See also PB-163 087, PB-168 187. Distribution: No limitation.

Descriptors: (*Libraries, Automation), (*Operations research, Libraries), (*Systems engineering, Libraries), Universities, Magnetic tape, Records, Character recognition, Inventory control, Costs, Microfilm.

Contents: Putting the union shelf list onto magnetic tape: Basic data conversion procedure; and Microfilming as a preliminary step. Circulation control: Recording charge-outs; Recording returns; Recording date due; and Operation of the system.

6. BIOLOGICAL AND MEDICAL SCIENCES

ABCC-63-64 **Field 6R, 18C**
CFSTI Prices: HC$3.00 MF$0.75
Atomic Bomb Casualty Commission, Hiroshima (Japan).
ATOMIC BOMB CASUALTY COMMISSION.
Annual rept. 1 Jul 63-30 Jun 64,
1964, 97p
Contract AF (49-1)-GEN-72
Distribution: No limitation.

Descriptors: (*Nuclear explosions, Wounds + injuries), (*Japan, Nuclear explosions).

BMI-X-10137 **Field 6R, 4A, 13B, 18B**
CFSTI Prices: HC$1.00 MF$0.50
Battelle Memorial Inst., Columbus, Ohio.
THE DEVELOPMENT OF AN IMPROVED METHOD OF SAMPLING AND ANALYSIS FOR ATMOSPHERIC IODINE,
by D. N. Sunderman, J. E. Howes and H. S. Rosenberg. 22 Jul 65, 20p
Contract W-7405-eng-92
Distribution: No limitation.

Descriptors: (*Air pollution, Iodine), (*Radioactive isotopes, Air pollution).

BNL-8379 **Field 6A**
CFSTI Prices: HC$1.00 MF$0.50
Brookhaven National Lab., Upton, N. Y.
STUDIES WITH DL-ALANINE-2-14C OF INTERACTION OF ETHANOL METABOLISM WITH PATHWAYS OF HEPATIC GLUCONEOGENESIS IN THE RAT,
by S. M. Joubert and W. W. Shreev. 12 Aug 64, 14p
Contract AT (30-2)-GEN-16
Distribution: No limitation.

Descriptors: (*Ethanols, Metabolism), (*Glycogen, Biosynthesis), (*Amino acids, Tracer studies).

Identifiers: Alanine.

BNL-912 **Field 6E, 6M**
CFSTI Prices: HC$1.00 MF$0.50
Brookhaven National Lab., Upton, N. Y.
MECHANISM OF THE IMMUNE RESPONSE.
Brookhaven lecture series, no. 42,
by Marian Elliott Koshland. 9 Dec 64, 18p
Contract AT (30-2)-GEN-16
Distribution: No limitation.

Descriptors: (*Immunity, Antigens ; antibodies).

BNL-924 **Field 6F, 6R, 6C**
CFSTI Prices: HC$1.00 MF$0.50
Brookhaven National Lab., Upton, N. Y.
RADIATION AND THE PATTERNS OF NATURE.
Brookhaven lecture series no. 45,
by George M. Woodwell. 24 Mar 65, 18p
Contract AT (30-2)-GEN-16
Distribution: No limitation.

Descriptors: (*Radiological contamination, Plants (Botany)), (*Plants (Botany), Radiological contamination).

BNWL-C-43 **Field 6R**
CFSTI Prices: HC$2.00 MF$0.50
Battelle-Northwest, Richland, Wash. Pacific Northwest Lab.
BIOLOGY AT PACIFIC NORTHWEST LABORATORY.
Special rept.
Mar 65, 40p
Contract AT (45-1)-1830
Distribution: No limitation.

Descriptors: (*Radiobiology, Scientific research).

CONF-650614-1 **Field 6C, 18B**
CFSTI Prices: HC$1.00 MF$0.50
California Univ., Los Angeles. Dept. of Agricultural Sciences.
TRANSLOCATION OF IRON IN PLANTS,
by A. Wallace and P. C. DeKock. 1964, 6p
Contract AT (11-1)-34,
Proj. 51
Presented at Symposium on The Use of Isotopes and Radiation in Soil-Plant Nutrition, Ankara.
Distribution: No limitation.

Descriptors: (*Plants (Botany), Iron).

CVNA-155 **Field 6R, 18I**
CFSTI Prices: HC$2.00 MF$0.50
Carolinas Virginia Nuclear Power Associates, Inc., Parr, S. C.
CVTR EMERGENCY PROCEDURES,
by Lionel Lewis. Jun 65, 27p
Contract AT (30-1)-2239
Revision of manuscript submitted July 1962. Distribution: No limitation.

Descriptors: (*Reactor operation, Safety).

FSU-2690-21 **Field 6A**
CFSTI Prices: HC$3.00 MF$0.75
Florida State Univ., Tallahassee. Dept. of Chemistry.
COPPER PROTEINS AND OXYGEN: CORRELATIONS BETWEEN STRUCTURE AND FUNCTION OF THE COPPER OXIDASES,
by Earl Frieden, Shigemasa Usaki, and Hiroshi Kobayashi. 15 May 65, 82p
Contract AT-6 (1)-2481; Grant PHS-HE-08344
Pub. in The Journal of General Physiology (Special issue), 1965. Distribution: No limitation.

Descriptors: (*Proteins (Conjugated), Molecular structure), (*Oxidoreductases, Molecular structure), (*Copper compounds, Oxidoreductases).

HASL-162 **Field 6R, 18D**
CFSTI Prices: HC$4.00 MF$0.75
Health and Safety Lab., New York Operations Office (AEC), N. Y.
NUCLEAR EMULSION SPECTROMETRY AT LOW AND INTERMEDIATE NEUTRON ENERGIES,
by R. Sanna, K. Obrien, M. Alberg, S. Rothenberg and J. McLaughlin. Jul 64, 99p
Distribution: No limitation.

Descriptors: (*Neutron detectors, Colloids), (*Radiation measurement systems, Colloids), Particle accelerators.

KLX-1872 **Field 6R, 6M, 21D**
CFSTI Prices: HC$3.00 MF$0.75
Vitro Engineering Co., New York, N. Y.
USE OF RADIATION TECHNIQUES FOR THE INHIBITION OF BACTERIAL GROWTH IN LIQUID MEDIA.
by S. K. Hellman. 15 Jul 65, 69p
Contract AT (30-1)-3331
Distribution: No limitation.

Descriptors: (*Radiation effects, Bacteria), Growth, Inhibition.

N65-16319 **Field 6A**
CFSTI Prices: HC$1.00 MF$0.50
Florida State Univ., Tallahassee. Inst. for Space Sciences.
THE CATALYTIC DECOMPOSITION OF GLUCOSE IN AQUEOUS SOLUTION BY THERMAL PROTEINOIDS,
by Sidney W. Fox and Gottfried Krampitz. 1964, 14p
Grant NsG173 62
NASA CR-60569
Pub. in Nature v203 p1362-64 1964. Distribution: No limitation.

Descriptors: (*Glucose, Decomposition).

N65-16326 **Field 6P**
CFSTI Prices: HC$2.00 MF$0.50
Stanford Univ., Calif. School of Medicine.
MEMBRANE SEPARATION,
by Jerry Lundstrom. May 63, 34p
Grant NsG81 60
NASA CR-51103
Distribution: No limitation.

Descriptors: (*Membranes (Biology), Permeability).

N65-16932 **Field 6S**
CFSTI Prices: HC$6.00 MF$1.25
BIO-Dynamics, Inc., Cambridge, Mass.
STUDY OF THE TRANSFERRAL OF SPACE TECHNOLOGY TO BIOMEDICINE,
Final rept.
21 Feb 64, 208p
Contract NASW-570
NASA CR-60635
Distribution: No limitation.

Descriptors: (*Space medicine, Scientific research).

N65-16976 **Field 6A, 7C**
CFSTI Prices: HC$1.00 MF$0.50
Stanford Research Inst., Menlo Park, Calif.
MAGNETIC PROPERTIES OF SOME MACROMOLECULES OF BIOLOGICAL INTEREST.
Progress rept. no. 1, 1 Aug-1 Nov 63.
14 Nov 63, 5p
Contract NASr49 16,
Proj. SRI4644
NASA CR-52854
Distribution: No limitation.

Descriptors: (*Biochemistry, Molecules), (*Molecules, Magnetic properties), (*Complex compounds, Magnetic properties).

Identifiers: Macromolecular biology.

N65-16984 **Field 6A, 7E**
CFSTI Prices: HC$1.00 MF$0.50
Stanford Research Inst., Menlo Park, Calif.
STUDIES ON THE HILL REACTION ACTIVITY OF SOLUBLE CHLOROPLAST EXTRACTS.
Quarterly progress rept. no. 2, 1 Jun-31 Aug 53.
25 Sep 63, 6p
Contract NASr49 11,
Proj. BU4435
NASA CR-52090
Distribution: No limitation.

Descriptors: (*Chloroplasts, Photochemistry), (*Photosynthesis, Chloroplasts).

N65-17068 **Field 6R**
CFSTI Prices: HC$1.00 MF$0.50
Lockheed-California Co., Burbank. Biophysics Research Div.
INVESTIGATION OF THE EFFECTS OF IONIZING RADIATION ON THE CENTRAL NERVOUS SYSTEM IN VIVO AND IN VITRO.
Quarterly rept. no. 1, 16 Jul-18 Oct 63,
by J. Ralph Meigs. 1963, 5p
Contract NASw787
NASA CR-52231
Distribution: No limitation.

Descriptors: (*Radiation effects, Central nervous system), (*Central nervous system, Radiation effects).

N65-17069 **Field 6P**
CFSTI Prices: HC$1.00 MF$0.50
Martin Co., Baltimore, Md. Research Dept.
CHEMOSYNTHETIC GAS EXCHANGER.
Quarterly progress rept. no. 2, 3 Sep-17 Dec 63,
by Leonard Bongers. 1963, 13p Rept. no. ER-13270-2
Contract NASw713
NASA CR-55188
Distribution: No limitation.

Descriptors: (*Cells (Biology), Growth), (*Oxygen, Cells (Biology)).

N65-17070 **Field 6C**
CFSTI Prices: HC$1.00 MF$0.50
RIAS, Inc., Baltimore, Md.
RESEARCH IN PHOTOSYNTHESIS.
Quarterly rept. no. 3, 6 Dec 63-6 Mar 64,
by Bessel Kok. 1964, 6p
Contract NASw747
NASA CR-53601
Distribution: No limitation.

Descriptors: (*Photosynthesis, Scientific research).

N65-17071 **Field 6K, 6C**
CFSTI Prices: HC$1.00 MF$0.50
Connecticut Agricultural Experiment Station, New Haven.
PLANT LEAVES FOR THE PRODUCTION OF OXYGEN IN A CLOSED SYSTEM.
Quarterly status rept. no. 4,
by Dale N. Moss. 20 May 63, 14p
Contract NASr129
NASA CR-50295
Distribution: No limitation.

Descriptors: (*Closed ecological systems, Plants (Botany)), (*Plants (Botany), Closed ecological systems), Oxygen.

N65-17072 **Field 6K, 6C**
CFSTI Prices: HC$1.00 MF$0.50
Connecticut Agricultural Experiment Station, New Haven.
PLANT LEAVES FOR THE PRODUCTION OF OXYGEN IN A CLOSED SYSTEM.
Final rept.,
by Dale N. Moss. 22 Nov 63, 3p
Contract NASr129
NASA CR-55131
Distribution: No limitation.

Descriptors: (*Closed ecological systems, Plants (Botany)), (*Plants (Botany), Closed ecological systems), Oxygen.

N65-17947 **Field 6B**
CFSTI Prices: HC$3.00 MF$0.50
General Electric Co., Philadelphia, Pa. Space Sciences Lab.
RESEARCH STUDY OF THE UTILIZATION OF BIOELECTRIC POTENTIALS.
Final rept.,
by J. J. Konikoff. 31 Oct 64, 55p
Contract NAS2 1420
NASA CR-60955
Distribution: No limitation.

Descriptors: (*Electrophysiology, Microminiaturization (Electronics)).

Identifiers: Bioelectricity, Bioengineering.

N65-18490 Field 6E
CFSTI Prices: HC$5.00 MF$1.00
Cedars of Lebanon Hospital, Los Angeles, Calif.
A TECHNIQUE FOR TESTING HEART FUNCTION BY ANALYSIS OF ITS VIBRATION SPECTRUM.
Progress rept.,
by Clarence M. Agress and Stanley Wegner. 31 Jan 65, 156p
Grant Nsg289
NASA CR-57145
Prepared in cooperation with California Univ., Los Angeles. Dept. of Medicine and Telecomputing Services, Inc., Panorama City, Calif. Distribution: No limitation.

Descriptors: (*Heart, Medical examination), (*Vibration, Heart).

N65-18938 Field 6P
CFSTI Prices: HC$1.00 MF$0.50
Florida State Univ., Tallahassee. Dept. of Psychology.
PERIPHERAL MECHANISMS OF HUMAN TEMPERATURE SENSITIVITY.
Final rept. for 1 Sep 61-31 Aug 64,
by D. R. Kenshalo and J. P. Nafe. 1964, 14p
Grant NsG148 61
NASA CR-57207
Distribution: No limitation.

Descriptors: (*Temperature, Thresholds (Physiology)).

N65-19871 Field 6F, 6S, 6T
CFSTI Prices: HC$1.00 MF$0.50
Ohio State Univ. Research Foundation, Columbus, Ohio. Environmental Physiology Lab.
BIOLOGICAL EFFECTS OF PROLONGED EXPOSURE OF SMALL ANIMALS TO UNUSUAL GASEOUS ENVIRON- MENTS.
Semiannual rept. for 1 Sep 64-28 Feb 65,
by H. S. Weiss and R. A. Wright. 1 Mar 65, 18p
OSURF-1492-5
Grant NsG295 62,
Proj. 1492
NASA CR-57477
Distribution: No limitation.

Descriptors: (*Oxygen, Toxicity), (*Respiration, Toxicity), Life support, Helium.

N65-21477 Field 6A
CFSTI Prices: HC$2.00 MF$0.50
National Aeronautics and Space Administration, Moffett Field, Calif. Ames Research Center.
STUDIES ON THE LOCALIZATION AND MECHANISM OF ALKALINE METAL ACTIVATION OF PROTEIN SYNTHESIS,
by Henry A. Leon and Henry L. Speer. 1964, 27p NASA-TM-X-51788
Distribution: No limitation.

Descriptors: (*Proteins, Biosynthesis), (*Alkaline metals, Metabolism).

N65-21478 Field 6C, 6F
CFSTI Prices: HC$2.00 MF$0.50
National Aeronautics and Space Administration, Moffett Field, Calif. Ames Research Center.
THE ORIGIN OF LIFE IN THE UNIVERSE,
by Cyril Ponnamperuma. 1964, 38p NASA-TM-X-51753
Presented at the Space Science Education Conference, Los Angeles, 4 Jun 64. Distribution: No limitation.

Descriptors: (*Space biology, Theory).

N65-21759 Field 6T, 6F
CFSTI Prices: HC$5.00 MF$1.00
Travelers Research Center, Inc., Hartford, Conn.
PRELIMINARY ESTIMATES OF ENVIRONMENTAL EXPOSURE FOR FUEL AND EXHAUST PRODUCTS, Volume I. PART 1: METHODS AND PRELIMINARY ESTIMATES FOR MSFC. PART 2: RECOMMENDED EXPERIMENTAL DESIGN FOR MSFC,
by Keith D. Hage and Norman E. Bowne. Jan 65, 157p
Contract NAS8 11450
NASA CR-62258
Distribution: No limitation.

Descriptors: (*Rocket propellants, Toxicity), (*Exhaust gases, Toxicity).

N65-22131 Field 6E
CFSTI Prices: HC$1.00 MF$0.50
Hawaii Univ., Honolulu.
BODY FLUID VOLUME AND ELECTROLYTE DERANGEMENTS IN FASTING.
Semiannual rept. no. 1, 1 Dec 64-31 Mar 65,
by Terence A. Rogers, Bryant T. Sather, and Myrtle L. Brown. Apr 65, 7p
Grant NGR12 001 010
NASA 62298
Distribution: No limitation.

Descriptors: (*Diet, Deficiency diseases), (*Body fluids, Diet), (*Electrolytes (Physiology), Diet).

N65-24674 Field 6C
CFSTI Prices: HC$3.00 MF$0.50
Chicago Univ., Ill.
INTEGRATED RESEARCH AND TRAINING IN SPACE- MOLECULAR BIOLOGY.
Annual Progress rept. for 1 Apr 64-31 Mar 65,
by Humberto Fernandez-Moran. 1965, 50p
Grant NsG441 63
NASA CR-62879
Distribution: No limitation.

Descriptors: (*Space biology, Scientific research).

N65-24899 Field 6M
CFSTI Prices: HC$4.00 MF$1.00
Dynamic Science Corp., South Pasadena, Calif.
MICROORGANISMS IN SOLID MATERIALS, PHASES I, II, III, AND IV.
Final summary rept.,
by Earl G. McNalt and William T. Duffy. 23 Apr 65, 150p
Contracts NAS7-100, JPL-950740
NASA CR-62980
Microfilmed from best available copy. Distribution: No limitation.

Descriptors: (*Microorganisms, Solids).

N65-25269 Field 6Q, 6K
CFSTI Prices: HC$3.00 MF$0.50
Northrop Space Labs., Hawthorne, Calif.
ANALYTICAL REVIEW OF PASSIVE MASS TRANSFER OF WATER VAPOR IN A SPACE SUIT,
by Joseph A. Peterson, Constantino Cafaro, Arnold P. Shlosinger, and Kay F. Sterrett. May 65, 56p Rept. no. NSL-65-87-1
Contract NAS2 2102
NASA CR-63144
Distribution: No limitation.

Descriptors: (*Pressure suits, Water vapor), (*Water vapor, Mass transfer).

N65-25401 Field 6M
CFSTI Prices: HC$1.00 MF$0.50
Massachusetts Inst. of Tech., Cambridge.
THE RESISTIVITY OF MICROORGANISMS TO THERMAL INACTIVATION BY DRY HEAT.
Final rept.,
by Gerald J. Silverman and Cecil G. Dunn. 1965, 17p
Contract NsG691
NASA CR-63198
Distribution: No limitation.

Descriptors: (*Resistance (Biological), Microorganisms), (*Microorganisms, Heat tolerance).

N65-29820 Field 6S
CFSTI Prices: HC$2.00 MF$0.50
Texas Inst. for Rehabilitation and Research, Houston.
THE EFFECT OF BEDREST ON VARIOUS PARAMETERS OF PHYSIOLOGICAL FUNCTION. PART VI. THE EFFECT OF THE PERFORMANCE OF PERIODIC FLACK MANEUVERS ON PREVENTING CARDIOVASCULAR DECONDITIONING OF BEDREST,
by Fred B. Vogt, David Cardus, Carlos Vallbona, and William A. Spencer. Jul 65, 37p
Contract NAS9 1461
NASA CR-176
Distribution: No limitation.

Descriptors: (*Relaxation (Physiology), Performance (Human)), (*Cardiovascular system, Relaxation (Physiology)).

Identifiers: Bed rest.

N65-32277 Field 6L
CFSTI Prices: HC$3.00 MF$0.75
Stanford Research Inst., Menlo Park, Calif.
DEVELOPMENT OF A BLOOD-PRESSURE TRANSDUCER FOR THE TEMPORAL ARTERY,
by G. L. Pressman and P. M. Newgard. Sep 65, 63p
Contract NAS2 1332
NASA CR-293
Distribution: No limitation.

Descriptors: (*Blood pressure, Medical equipment), (*Medical equipment, Blood pressure).

NYO-3426-1 Field 6H, 18B, 6R, 6M
CFSTI Prices: HC$3.00 MF$0.75
Little (Arthur D.) Inc., Cambridge, Mass.
STUDY OF THE ECONOMICS OF CONTROLLING SALMONELLAE IN FOODS BY THE USE OF IONIZING RADIATION.
30 Apr 65, 71p
Contract AT (30-T)-3426
Distribution: No limitation.

Descriptors: (*Salmonella, Radiation effects), (*Irradiated foods, Salmonella), Costs.

NYO-3445-3 Field 6A
CFSTI Prices: HC$2.00 MF$0.50
Albert Einstein Medical Center, Philadelphia, Pa. Lab. of Experimental Dermatology.
ATTEMPTS TO DEMONSTRATE THE LYSOSOMAL NATURE OF EPIDERMAL DNASES I AND II AND ACID AND ALKALINE PHOSPHATASES.
First year progress rept. 14 Aug 64-15 Apr 65. 15 Apr 65, 29p
Contract AT (30-1)-3445
Distribution: No limitation.

Descriptors: (*Phosphoric monoester hydrolases, Chemical analysis), (*Ribonuclease, Chemical analysis).

Identifiers: Lysosomes.

NYO-3461-1 Field 6H, 6R
CFSTI Prices: HC$3.00 MF$0.75
Massachusetts Univ., Amherst. School of Home Economics.
THE DETERMINATION OF THE WHOLESOMENESS OF IRRADIATED PASTEURIZED CLAMS.

Descriptors: (*Irradiated foods, Pelecypoda), (*Pelecypoda, Irradiated foods).

NYO-4700 (rev.) (suppl. 2) **Field 6R**
CFSTI Prices: HC$4.00 MF$0.75
Health and Safety Lab., New York Operations Office (AEC), N. Y.
HEALTH AND SAFETY LABORATORY ANALYTICAL MANUAL.
Sep 65, 99p
Revision of manuscript submitted Aug 65. Distribution: No limitation.

Descriptors: (*Radiochemistry laboratories, Health physics), (*Health physics, Instruction manuals), Safety, Nuclear physics laboratories.

ORNL-3865 **Field 6R**
CFSTI Prices: HC$2.00 MF$0.50
Oak Ridge National Lab., Tenn.
PANEL DISCUSSION ON CIVIL DEFENSE, AMERICAN NUCLEAR SOCIETY ANNUAL MEETING, WEDNESDAY EVENING, JUNE 23, 1965, GATLINBURG, TENNESSEE.
Sep 65, 46p
Contract W-7405-eng-26
Distribution: No limitation.

Descriptors: (*Civil defense systems, Nuclear warfare), (*Nuclear warfare, Civil defense systems).

Patent 3,218,103 **Field 6Q**
PNEUMATIC RESTRAINT SYSTEM.
Patent assigned to Air Force,
by William C. Boyce. 16 Nov 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Safety harness, Pneumatic devices), (*Astronauts, Safety devices), Spacecraft cabins, Storage, Patents.

The device is for the protection of astronauts on reentry and deceleration for an earth or water landing. The body restraint system employs groups or curtains of inflatable fabric bags or bladders which are supported by appropriately curved metal frames. The latter are attached at their ends to slides operating on tracks similar to the arrangement for the sliding of a sail on the mast of a sailboat. When the system is not in use, a stowed position is provided whereby the bags are collapsed to a position out of the way of the astronaut. The lower leg restraint bladders and those for the lap are stowed above and forward of the knees while the forearm restraint components are stowed forward of the hands and could, if required, be made to surround any hand control device. The remaining restraint systems are stowed above the head and shoulders.

PB-168 616 **Field 6L, 9B**
CFSTI Prices: HC$2.00 MF$0.50
System Development Corp., Santa Monica, Calif.
SIMULATED WARD EXPERIMENT PRINTOUTS,
by Ellis P. Myer. 18 Jul 63, 33p SP-812/001/00
See also PB-166 461. Distribution: No limitation.

Descriptors: (*Hospitals, Data processing systems), (*Programming (Computers), Hospitals), Records, Data storage systems, Information retrieval, Automatic, Simulation.

Identifiers: IBM 1401.

Computer programs for the IBM 1401 RAMAC system were developed that simulate portions of hospital activities. By using data from actual patient records, the programs stored, processed, summarized, and retrieved selected clinical and administrative information. The computer programs were developed in cooperation with the Veterans Administration Department of Medicine and Surgery. The printouts show records produced by the simulation programs.

PB-168 619 **Field 6R**
CFSTI Prices: HC$3.00 MF$0.75
Commissariat a l'Energie Atomique, Fontenay-AuxRoses (France). Centre d'Etudes Nucleaires.
RESTAURATION ET RADIO-RESISTANCE CHEZ LA SOURIS APRE IRRADIATION EXTERNE (Recovery and Radio-Resistance in Mice after External Irradiation),
by Sylvain Le Guillou. Oct 65, 89p CEA-R-2776
Rept. in French; summary in English. Distribution: No limitation.

Descriptors: (*Radiation tolerance, Mice), Healing, Gamma rays, Antigens + antibodies, France.

The author presents a literature study concerning recovery from external irradiation and an analysis of experimental data (which appear to suggest the idea of a radio-resistance in animals), as well as the hypotheses put forward for explaining this phenomenon. The author then describes an experiment carriet out on mice whose LD 50/30 days increased from 1005 to 1380 rads and for which it was shown that an increase occurs in the number of certain anti-bodies circulating after a low dose of gamma irradiation. (Author)

SC-RR-65-286, vol. 3 **Field 6R, 18D**
CFSTI Prices: HC$3.00 MF$0.75
Sandia Corp., Albuquerque, N. Mex.
PROJECT SAND FINAL PROGRAM REPORT. VOLUME III. DYNAMIC ANALYSIS OF THE SAND SAMPLER FLIGHT,
by H. R. Vaughn and D. Q. Matejka. Sep 65, 63p
Contract AT (29-1)-789
Distribution: No limitation.

Descriptors: (*Atmospheric sounding, Radioactivity fallout), (*Flight testing, Samplers).

UCD-472-112 **Field 6R**
CFSTI Prices: HC$5.00 MF$1.00
California Univ., Davis. School of Veterinary Medicine.
THE EFFECTS OF CONTINUED Sr-90 INGESTION DURING THE GROWTH PERIOD OF THE BEAGLE AND ITS RELATION TO Ra-226 TOXICITY.
Annual progress rept. no. 8,
by A. C. Andersen. Jun 65, 178p
Contract AT (04-3)-472
Distribution: No limitation.

Descriptors: (*Radiation effects, Strontium), (*Strontium, Ingestion (Physiology)), Dogs.

7. CHEMISTRY

AGN-8137 (vol. 1) **Field 7E, 7A, 20H**
CFSTI Prices: HC$4.00 MF$1.00
Aerojet-General Neucionics, San Ramon, Calif.
FISSIOCHEMICAL PROCESS DEVELOPMENT PROGRAM. VOLUME I. APPLIED RESEARCH.
Final rept. ,
by S. Kahn and F. R. Standerfer. Mar 65, 143p
Contract AT (04-3)-368
Distribution: No limitation.

Descriptors: (*Fission, Chemical engineering), (*Fission products, Chemical engineering).

ANL-6956 **Field 7B**
CFSTI Prices: HC$4.00 MF$0.75
Argonne National Lab., Ill.
THE CHEMICAL ANALYSIS OF Pu, Pu ALLOYS, AND Pu COMPOUNDS: METHODS, TECHNIQUES, SEPARATIONS PROCEDURES, AND PHYSICAL DATA. AN ANNOTATED BIBLIOGRAPHY OF THE LITERATURE,
by H. B. Evans and J. O. Karttunen. Oct 64, 110p
Contract W-31-109-eng-38
Distribution: No limitation.

Descriptors: (*Plutonium, Chemical analysis).

BNL-8405 **Field 7E, 7C**
CFSTI Prices: HC$1.00 MF$0.50
Brookhaven National Lab., Upton, N. Y.
A NOVEL SYNTHESIS OF CARRIER-FREE RU106LABELLED RUTHENOCENE,
by Ursel Zahn and Garman Harbottle. 1961, 9p

Contract AT (30-1)-GEN-16
Distribution: No limitation.

Descriptors: (*Metalorganic compounds, Ruthenium compounds), (*Ruthenium compounds, Synthesis (Chemistry)).

Identifiers: Ruthenocenes.

BNL-9171 **Field 7B, 7D**
CFSTI Prices: HC$1.00 MF$0.50
Brookhaven National Lab., Upton, N. Y.
SOME ASPECTS OF ELECTRON EXCHANGE REACTIONS IN SOLUTION.
by Norman Sutin. 1965, 14p CONF-650520-2, SM-64/33
Contract AT (30-2)-GEN-16
Distribution: No limitation.

Descriptors: (*Exchange reactions, Solutions), (*Electron transitions, Exchange reactions).

BNWL-114 **Field 7O, 7A**
CFSTI Prices: HC$3.00 MF$0.75
Battelle-Northwest, Richland, Wash. Pacific Northwest Lab.
THERMAL EFFECTS IN ANION EXCHANGE RESINNITRIC ACID SYSTEMS,
by W. J. Van Slyke, G. Jansen, Jr. and W. H. Swift. Aug 65, 68p
Contract AT (45-1)-1630
Distribution: No limitation.

Descriptors: (*Ion exchange resins, Thermal properties), (*Nitric acid, Thermal properties).

BNWL-82 **Field 7E**
CFSTI Prices: HC$2.00 MF$0.50
Battelle-Northwest, Richland, Wash. Pacific Northwest Lab.
THE FORMATION OF CHEMICALS BY REACTOR IRRADIATION OF OXYGENATED WATER AND AMMONIATED WATER,
by W. K. Winegardner. Jul 65, 19p
Contract AT (45-1)-1830
Distributions: No limitation.

Descriptors: (*Hydrazine, Radiation chemistry), (*Hydrogen peroxide, Radiation chemistry).

COO-1140-107 **Field 7D**
CFSTI Prices: HC$1.00 MF$0.50
Kansas Univ., Lawrence. Dept. of Chemistry.
THE HIGH TEMPERATURE VAPORIZATION AND THERMODYNAMIC PROPERTIES OF TITANIUM MONOSULFIDE,
by Hugo F. Franzen and Paul W. Gilles. 27 Jul 64, 16p
Contract AT (11-1)-1140
Distribution: No limitation.

Descriptors: (*Titanium compounds, Sulfides), (*Sulfides, Titanium compounds), Thermodynamics, Vaporization, Sublimation.

COO-499-1 **Field 7C, 7A**
CFSTI Prices: HC$1.00 MF$0.50
Colorado Univ., Boulder.
SEPARATION OF AMINES BY LIGAND EXCHANGE. PART II,
by J. J. Latterell and H. F. Walton. 1962, 22p
Contract AT (11-1)-499
See also COO-499. Distribution: No limitation.

Descriptors: (*Amines, Ion exchange), (*Ion exchange resins, Effectiveness).

COO-499-2 **Field 7C, 7A**
CFSTI Prices: HC$1.00 MF$0.50
Colorado Univ., Boulder.
SEPARATION OF AMINES BY LIGAND EXCHANGE. PART III. A COMPARISON OF DIFFERENT CATION EXCHANGERS,
by Ann Gertrude Hill, Robert Sedgley, and Harold F. Walton. 1962, 16p
Contract AT (11-1)-499
See also COO-499-1. Distribution: No limitation.

Descriptors: (*Amines, Ion exchangers), (*Ion exchange resins, Effectiveness).

COO-587-17 **Field 7D**
CFSTI Prices: HC$2.00 MF$0.50
IIT Research Inst., Chicago, Ill.
MAGNETIC PROPERTIES OF INSULATORS.
Quarterly rept. for 16 Feb-15 May 1965,
by Gordon Noble. 5 Jun 65, 47p IITRI-1184-17
Contract AT (11-1)-587
Distribution: No limitation.

Descriptors: (*Electrical insulators, Magnetic properties), F-centers, Rubidium compounds, Chlorides, Magnetic resonance.

DP-956 **Field 7E, 18C, 18B**
CFSTI Prices: HC$3.00 MF$0.50
Du Pont De Nemours (E. I.) and Co., Aiken, S. C. Savannah River Lab.
RECOVERY OF ACTINIDES PRODUCED BY A NUCLEAR DETONATION IN SALT FORMATIONS,
by David G. Karraker and William C. Perkins. Jun 65, 47p
Contract AT (07-2)-1
Distribution: No limitation.

Descriptors: (*Nuclear explosions, Actinide series compounds), (*Actinide series compounds, Nuclear explosions), Underground explosions, Salts).

DP-983 **Field 7B, 11F**
CFSTI Prices: HC$1.00 MF$0.50
Du Pont De Nemours (E. I.) and Co., Aiken, S. C. Savannah River Lab.
REDUCTION OF PLUTONIUM DIOXIDE TO PLUTONIUM METAL,
by Major C. Thompson. Jul 65, 10p
Contract AT (07-2)-1
Distribution: No limitation.

Descriptors: (*Plutonium compounds, Reduction (Chemistry)).

Identifiers: Plutonium dioxide.

HW-SA-3484 **Field 7A, 13H**
CFSTI Prices: HC$2.00 MF$0.50
Hanford Atomic Products Operation, Richland, Wash.
NONLINEAR MODEL DETERMINATION OF CONCENTRATION PROFILES IN TWO-PHASE COUNTERCURRENT EXTRACTORS,
by N. P. Wilburn and W. L. Nicholson. 18 Aug 64, 27p
Contract AT (45-1)-1350
Distribution: No limitation.

Descriptors: (*Mass transfer, Mathematical analysis).

Identifiers: Countercurrent extractors.

HW-74968 **Field 7A**
CFSTI Prices: HC$1.00 MF$0.50
Hanford Atomic Products Operation, Richland, Wash.
DEVELOPMENT OF SALT CYCLE PROCESS INSTRUMENTATION,
by C. E. Huck and O. H. Koski. 19 Sep 62, 12p
Contract AT (45-1)-1350
Distribution: No limitation.

Descriptors: (*Salts, Liquids), (*Electrochemistry, Instrumentation).

Identifiers: Fused salts.

HW-77978 **Field 7A, 18D**
CFSTI Prices: HC$1.00 MF$0.50
Hanford Atomic Products Operation, Richland, Wash.
DEVELOPMENT OF A DISSOLVER SOLUTION BOILING POINT MONITOR,
by O. H. Koski. 28 Jun 63, 5p
Contract AT (45-1)-1350
Distribution: No limitation.

Descriptors: (*Uranium, Solutions), (*Boiling point, Monitors).

HW-81166 **Field 7B**
CFSTI Prices: HC$1.00 MF$0.50
Hanford Atomic Products Operation, Richland, Wash.
THE DISTRIBUTION OF AM (3 +) BETWEEN XYLENE-- DBBP SOLUTIONS AND NITRATE SOLUTIONS,
by J.C. Sheppard. Mar 64, 9p
Contract AT (45-1-1350)
Distribution: No limitation.

Descriptors: (*Americium compounds, Solvent extraction).

HW-84509 **Field 7A**
CFSTI Prices: HC$1.00 MF$0.50
Hanford Atomic Products Operation, Richland, Wash.
PURIFICATION OF MERCURY BY COUNTERCURRENT LIQUID-LIQUID EXTRACTION,
by D. A. Cochran. 16 Nov 64, 5p
Contract AT (45-1-1350
Distribution: No limitation.

Descriptors: (*Mercury, Purification), (*Solvent extraction, Mercury).

IDO-14660 **Field 7E, 18J, 18K**
CFSTI Prices: HC$2.00 MF$0.50
Phillips Petroleum Co., Idaho Falls, Idaho. Atomic Energy Div.
BURNUP DETERMINATION OF NUCLEAR FUELS.
Project rept. for 1 Jan-31 Mar 65,
ed. by W. J. Maeek and J. E. Rein. Jun 65, 39p
Contract AT (10-1)-205
Distribution: No limitation.

Descriptors: (*Fuel burn up, Determination).

IDO-17106 **Field 7D, 20B**
CFSTI Prices: HC$1.00 MF$0.50
Phillips Petroleum Co., Idaho Falls, Idaho. Atomic Energy Div.
A PROPOSAL TO INVESTIGATE THE PHYSICAL PROPERTIES OF SAMPLES UNDER VERY HIGH PRESSURES BY TIME-OF-FLIGHT NEUTRON DIFFRACTION METHODS,
by R. M. Brugger. Aug 65, 20p
Contract AT (10-1)-205
Distribution: No limitation.

Descriptors: (*Solids, Physical properties), (*Neutron analysis, Powders).

IS-T-27 **Field 7E**
CFSTI Prices: HC$3.00 MF$0.75
Ames Lab., Iowa State Univ. of Science and Tech.
DEACTIVATION OF REACTION COMPLEXES IN THE RECOIL CHEMISTRY OF C11.
Doctoral thesis,
by Frank Gerald Mesich. Jul 65, 96p
Contract W-7405-eng-32
Distribution: No limitation.

Descriptors: (*Recoil atoms, Carbon), (*Carbon, Complex compounds), (*Complex compounds, Recoil atoms).

IS-1119 **Field 7D**
CFSTI Prices: HC$1.00 MF$0.50
Ames Lab., Iowa State Univ. of Science and Tech.
THREE-DIMENSIONAL AND ONE-DIMENSIONAL FREE-ELECTRON MOLECULAR ORBITALS,
by Richard L. Hummel and Klaus Ruedenberg. 3 Mar 65, 18p
Contract W-7405-eng-82
Distribution: No limitation.

Descriptors: (*Molecular orbitals, Mathematical models).

LA-DC-6953 **Field 7B, 11F, 18J**
CFSTI Prices: HC$3.00 MF$0.50
Los Alamos Scientific Lab., Univ. of California, N. Mex.
A MASS SPECTROMETRIC STUDY OF THE VAPOR PRESSURE OF U (G) AND UC2 (G) OVER VARIOUS COMPOSITIONS IN THE URANIUM-CARBON SYSTEM,
by Edmund K. Storms. 1965, 57p CONF-650704-10
Contract W-7405-eng-36
Presented at the IAEA Symposium on Thermodynamics, Vienna. Distribution: No limitation.

Descriptors: (*Vapor pressure, Uranium compounds), (*Uranium compounds, Carbon compounds).

LA-3303 **Field 7B**
CFSTI Prices: HC$1.00 MF$0.50
Los Alamos Scientific Lab., Univ. of California, N. Mex.
THE SOLUBILITY OF SELECTED ELEMENTS IN LIQUID PLUTONIUM. IV. EVALUATION OF SAMPLING TECHNIQUES,
by D. F. Bowersox and J. A. Leary. 22 Mar 65, 5p
Contract W-7405-eng-36
Distribution: No limitation.

Descriptors: (*Plutonium, Solvent action).

LA-3343 **Field 7B, 18I, 18J**
CFSTI Prices: HC$2.00 MF$0.50
Los Alamos Scientific Lab., Univ. of California, N. Mex.
DETERMINATION OF TRACE AMOUNTS OF OXYGEN ADDED TO METALLIC SODIUM,
by K. S. Bergstresser, G. R. Waterbury, and C. F. Metz. May 65, 22p
Contract W-7405-eng-36
Distribution: No limitation.

Descriptors: (*Oxygen, Liquid metals), (*Sodium, Oxygen), Chemical analysis.

LA-3345 **Field 7D, 11F**
CFSTI Prices: HC$1.00 MF$0.50
Los Alamos Scientific Lab., Univ. of California, N. Mex.
THE CONTROLLED POTENTIAL ELECTRODEPOSITION OF COBALT FROM PLUTONIUM-CERIUM-COBALT ALLOY SOLUTIONS,
by Joel W. Dahlby and Glenn R. Waterbury. May 65, 11p
Contract W-7405-eng-36
Distribution: No limitation.

Descriptors: (*Cobalt, Electrodeposition), (*Electrodeposition, Cobalt).

LA-3356-MS **Field 7B, 18B**
CFSTI Prices: HC$1.00 MF$0.50
Los Alamos Scientific Lab., Univ. of California, N. Mex.
PREPARATION OF ULTRA-HIGH PURITY PLUTONIUM,
by J. A. Leary and L. J. Mullins. 21 Jul 65, 7p
Contract W-7405-eng-36
Distribution: No limitation.

Descriptors: (*Plutonium, Purification), (*Purification, Plutonium), Refining (Metallurgy).

LA-3359 **Field 7B**
CFSTI Prices: HC$1.00 MF$0.50
Los Alamos Scientific Lab., Univ. of California, N. Mex.
THE SOLUBILITIES OF SELECTED ELEMENTS IN LIQUID PLUTONIUM. VI. RHENIUM,
by D. F. Bowersox, and J. A. Leary. 30 Jun 65, 9p
Contract W-7405-eng-36
Distribution: No limitation.

Descriptors: (*Plutonium, Liquid metals), (*Rhenium, Solubility).

MLM-1233J **Field 7D, 18J**
CFSTI Prices: HC$1.00 MF$0.50
Mound Lab., Miamisburg, Ohio.
HYDROLYTIC SEPARATIONS OF PROTACTINIUM,
by H. W. Kirby. 28 Dec 64, 13p CONF-650701-1
Contract AT (30-1)-GEN-53
Presented at Colloquim on Physical Chemistry of Protactinium, Paris. Distribution: No limitation.

Descriptors: (*Protactinium, Purification), (*Hydrolysis, Protactinium).

MLM-1234J **Field 7D, 18J**
CFSTI Prices: HC$1.00 MF$0.50
Mound Lab., Miamisburg, Ohio.
PURIFICATION OF PROTACTINIUM FROM NATURAL SOURCES,
by H. W. Kirby and P. E. Figgins. 28 Dec 64, 11p CONF-650701-2
Contract AT (33-1)-GEN-53
Presented at Colloquim on Physical Chemistry of Protactinium, Paris. Distribution: No limitation.

Descriptors: (*Protactinium, Purification), (*Radiochemistry, Protactinium).

MND-3062-8 **Field 7B**
CFSTI Prices: HC$2.00 MF$0.50
Martin Co., Baltimore, Md. Nuclear Div.
DIRECT PRECIPITATION SYNTHESIS OF STRONTIUM TITANATE,
by J. H. Gray, III and G. Samos. Aug 64, 44p
Contract AT (30-1)-3062
Distribution: No limitation.

Descriptors: (*Strontium compounds, Chemical precipitation), (*Titanates, Synthesis (Chemistry)).

Identifiers: Strontium titanate.

N65-21757 **Field 7B**
CFSTI Prices: HC$1.00 MF$0.50
National Aeronautics and Space Administration, Cleveland, Ohio. Lewis Research Center.
VISIBLE ABSORPTION SPECTRA OF SODIUM IN SODIUM IODIDE,
by J. Greenberg and I. Warshawsky. 19 May 64, 5p NASA-TM-X-51789
Distribution: No limitation.

Descriptors: (*Sodium, Absorption spectrum), (*Spectra (Visible + ultraviolet)).

Identifiers: Sodium iodide.

N65-22207 **Field 7D**
CFSTI Prices: HC$2.00 MF$0.50
Cornell Aeronautical Lab., Buffalo, N. Y.
ON THE THERMAL ENERGY TRANSFER BETWEEN FREE ELECTRONS AND MOLECULAR VIBRATION,
by I. R. Hurle. Jun 64, 47p
Contract NASr109
NASA CR-56817
Submitted for publication in The Journal of Chemical Physics. Distribution: No limitation.

Descriptors: (*Electrons, Heat transfer), (*Chemical bonds, Heat transfer).

N65-25268 **Field 7D**
CFSTI Prices: HC$3.00 MF$0.75
Grumann Aircraft Engineering Corp., Bethpage, N. Y. Research Dept.
CALCULATION OF HYDROGEN ATOM CROSS SECTIONS.
Final rept.,
by Frank R. Pomilla and S. N. Milford. May 65, 82p Rept. no. RE-210
Contract NASw894
NASA CR-63147
Distribution: No limitation.

Descriptors: (*Hydrogen, Atomic energy levels).

N65-25592 **Field 7D, 3B**
CFSTI Prices: HC$1.00 MF$0.50
Johns Hopkins Univ., Baltimore, Md.
HIGH RESOLUTION EMISSION VEGARD-KAPLAN BANDS OF NITROGEN.
Technical rept.,
by R. E. Miller. Apr 65, 20p Rept. no. TR-8
Grant NsG193 62
NASA CR-63250
Distribution: No limitation.

Descriptors: (*Electron transitions, Nitrogen), (*Band spectrum, Planetary atmospheres).

N65-30899 **Field 7D, 20F**
CFSTI Prices: HC$1.00 MF$0.50
National Aeronautics and Space Administration, Cleveland, Ohio. Lewis Research Center.
SHOCK-TUBE GAS TEMPERATURE MEASUREMENTS BY INFRARED MONOCHROMATIC RADIATION PYROMETRY,
by Milton R. Lauber, Jerry L. Hall, and Frank E. Belles. Aug 65, 11p NASA-TN-D-2955
Distribution: No limitation.

Descriptors: (*High-temperature research, Infrared spectroscopy), (*Infrared spectroscopy, Hightemperature research).

N65-30957 **Field 7D, 1A**
CFSTI Prices: HC$2.00 MF$0.50
National Aeronautics and Space Administration, Moffett Field, Calif. Ames Research Center.
A MODEL FOR CHEMICALLY REACTING NITROGENOXYGEN MIXTURES WITH APPLICATION TO NONEQUILIBRIUM AIR FLOW,
by Walter A. Reinhardt and Barrett S. Baldwin, Jr. Aug 65, 39p NASA-TN-D-2971
Distribution: No limitation.

Descriptors: (*Nonequilibrium flow, Chemical reactions), (*Nitrogen, Chemical reactions), (*Oxygen, Chemical reactions).

NAA-SR-10486 **Field 7B, 18J**
CFSTI Prices: HC$2.00 MF$0.50
Atomics International, Canoga Park, Calif.
PREPARATION OF UC BY CARBOTHERMICREDUCTION OF U3O8,
by S. Strausberg. 30 Jun 65, 35p
Contract AT (11-1)-GEN-8
Distribution: No limitation.

Descriptors: (*Reactor fuels, Preparation), (*Uranium compounds, Carbides).

Identifiers: Uranium monocarbide.

NAA-SR-11235 **Field 7B, 18J**
CFSTI Prices: HC$1.00 MF$0.50
Atomics International, Canoga Park, Calif.
THE CHEMICAL REACTIVITY OF URANIUM CARBIDE,
by E. W. Murbach. 30 Jun 65, 19p
Contract AT (11-1)-GEN-8
Distribution: No limitation.

Descriptors: (*Uranium compounds, Carbides), (*Reactor fuels, Chemical reactions).

Identifiers: Uranium monocarbide.

NAS-NS-3057 **Field 7E**
CFSTI Prices: HC$2.25 MF$1.25
Mound Lab., Miamisburg, Ohio.
THE RADIOCHEMISTRY OF RADIUM,
by H. W. Kirby and Murrell L. Salutsky. Dec 64, 210p
Contract AT (33-1)-GEN-53
Prepared in cooperation with Grace (W. E.) and Co., Clarksville, Md. Washington Research Center. Distribution: No limitation.

Descriptors: (*Radium, Radiochemistry), (*Radiochemistry, Radium).

NYO-2873-7 **Field 7D, 7B**
CFSTI Prices: HC$1.00 MF$0.50
Maine Univ., Orono. Dept. of Chemistry.
ELECTROLYTIC SOLUTIONS.
Annual progress rept.,
by Jerry Braunstein. 31 May 65, 9p
Contract AT (30-1)-2873
Distribution: No limitation.

Descriptors: (*Electrolytes, Electrochemistry), (*Electrochemistry, Electrolytes).

NYO-3334-1 **Field 7E**
CFSTI Prices: HC$3.00 MF$0.50
Air Reduction Co., Inc., Murray Hill, N. J. Research and Engineering Dept.
RESEARCH ON APPLICATIONS OF RADIATION- INDUCED REACTIONS IN GASES.
Final rept.,
by M. Feibush. 12 Feb 65, 56p
Contract AT (30-1)-3334
Distribution: No limitation.

Descriptors: (*Radiochemistry, Gases), (*Gases, Radiochemistry).

ORO-627 Field 7E
CFSTI Prices: HC$3.00 MF$0.75
Texas Nuclear Corp., Austin.
A STUDY OF FLUORESCENT EXCITATION USING ISOTOPIC X-RAY EMISSION,
by Troy C. Martin and Kenneth R. Blake. 31 Mar 65, 64p
Contract AT (40-1)-3224
Distribution: No limitation.

Descriptors: (*Fluorescence, Excitation).

Patent 3,212,441 Field 7D, 4A
ARTIFICIAL GLOW IN THE UPPER-ATMOSPHERE.
Patent assigned to Air Force,
by Norman W. Rosenberg and Dan S. Golomb. 19 Oct 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Upper atmosphere, Luminescence), (*Luminescence, Metal-organic compounds), Sky brightness, Patents.

The method provides for the emission of a trail of light within the visible, infrared and ultraviolet parts of the spectrum. The trail can be formed at heights in excess of 85 kilometers. The organo-metallic compounds which produce the glow are released from a rocket structure. The compound may be trimethyl aluminum.

PB-168 626 Field 7B
CFSTI Prices: HC$3.00 MF$0.50
Commissariat a l'Energie Atomique, Grenoble (France). Centre d'Etudes Nucleaires.
CONTRIBUTION A L'ETUDE DU SYSTEME URANIUM-HYDROGENE (Contribution to the Study of the Uranium-Hydrogen System).
Doctoral thesis,
by Jacques Chevallier. 20 Jan 65, 52p CEA-R-2777
Rept. in French; summary in English. Distribution: No limitation.

Descriptors: (*Uranium, Phase studies), (*Hydrogen, Phase studies), (*Uranium compounds, Hydrides), Carbides, Uranium alloys, Hydrogenation, France.

Previous work on uranium-hydrogen system is reviewed. The U-H2-UH (n) equilibrium is then investigated at pressures below one atmosphere, i.e. at temperatures lower than 430C. The hydride obtained at equilibrium is deficient in hydrogen UH (n<3), the hydrogen deficit increasing as the temperature rises. Thermodynamic functions for the formation of non-stoichiometric hydride and of one hydrogen vacancy are derived from pressure -composition isotherms an U-H phase diagram is proposed. The hydrogenation of U-UC alloys is also examined at pressures below one atmosphere with regard to the equilibrium : (free U + UC) - H2-UH (n). The equilibrium conditions are found different from that observed for pure uranium. (Author)

RFP-503 Field 7B, 6R
CFSTI Prices: HC$2.00 MF$0.50
Rocky Flats Div., Dow Chemical Co., Denver, Colo.
PROPERTIES OF PLUTONIUM DIOXIDE,
by J. D. Moseley and R. D. Wing. 24 Aug 65, 33p
Contract AT (29-1)-1106
Distribution: No limitation.

Descriptors: (*Plutonium compounds, Dioxides), (*Chemical properties, Plutonium), Physical properties.

RFP-531 Field 7A
CFSTI Prices: HC$1.00 MF$0.50
Rocky Flats Div., Dow Chemical Co., Golden, Colo.
COMPATIBILITY STUDIES OF ANION EXCHANGE RESINS. PART I. THE COMPATIBILITY OF DOWEX 1X4 NITRATE FORM ANION RESIN WITH NITRIC ACID AND OXIDES OF NITROGEN,
by G. F. Molen. 17 May 65, 16p
Contract AT (29-1)-1106
Distribution: No limitation.

Descriptors: (*Ion exchange resins, Compatibility), (*Nitrates, Ion exchange resins).

RFP-552 Field 7E, 6R, 11F
CFSTI Prices: HC$1.00 MF$0.50
Rocky Flats Div., Dow Chemical Co., Golden, Colo.
TECHNICAL SERVICES.
Quarterly progress rept. for Dec 64-Feb 65, 24 Jun 65, 13p
Contract AT (29-1)-1106
Distribution: No limitation.

Descriptors: (*Health physics, Reviews), (*Chemical analysis, Radiochemistry), (*Non-destructive testing, Reviews).

RFP-566 Field 7B, 21B
CFSTI Prices: HC$1.00 MF$0.50
Rocky Flats Div., Dow Chemical Co., Golden, Colo.
PRELIMINARY STUDIES ON REACTIONS OF BURNING PLUTONIUM IN VARIOUS SOLVENTS,
by S. H. Pitts, Jr. 19 Jul 65, 11p
Contract AT (29-1)-1106
Distribution: No limitation.

Descriptors: (*Plutonium, Combustion).

SC-R-65-930, vol. 1 Field 7D
CFSTI Prices: HC$7.00 MF$1.50
Sandia Corp., Albuquerque, N. Mex.
PHYSICAL PROPERTIES OF FUSED SALT MIXTURES. DATA FROM OPEN LITERATURE, 1907-1962,
by Paul V. Clark. 15 Jun 65, 294p
Contract AT (29-1)-789
Distribution: No limitation.

Descriptors: (*Salts, Physical properties), (*Eutectics, Physical properties).

Identifiers: Fused salts.

SC-RR-65-219 Field 7B, 7D
CFSTI Prices: HC$3.00 MF$0.75
Sandia Corp., Albuquerque, N. Mex.
KINETICS OF THE REACTIONS BETWEEN FOUR VALENT URANIUM AND THE VARIOUS VALENCE STATES OF NEPTUNIUM,
by J. O. Wear, N. K. Shastri and E. S. Amis. May 65, 67p
Contract AT (29-1)-789
Distribution: No limitation.

Descriptors: (*Uranium, Reaction kinetics), (*Neptunium, Reaction kinetics).

TID-21955 Field 7B, 6R, 7E
CFSTI Prices: HC$1.00 MF$0.50
Connecticut Agricultural Experiment Station, New Haven.
FIXATION OF CESIUM 137 BY SOIL CLAYS.
Progress rept. for 1962-1965.
1965, 8p
Contract AT (30-1)-2955
Distribution: No limitation.

Descriptors: (*Cesium, Soils), (*Clay, Cesium), Absorption, Tracer studies.

UCRL-16050 Field 7B, 7D
CFSTI Prices: HC$6.00 MF$1.25
Lawrence Radiation Lab., Univ. of California, Berkeley.
STUDIES OF ATOMIC HYDROGEN AT LOW PRESSURES,
by Peter R. Romy. 20 Apr 65, 222p
Contract W-7405-eng-48
Distribution: No limitation.

Descriptors: (*Hydrogen, Reaction kinetics).

UCRL-16075 Field 7B, 7D
CFSTI Prices: HC$1.00 MF$0.50
Lawrence Radiation Lab., Univ. of California, Berkeley.
HIGH PRESSURE INVESTIGATIONS OF SULFUR,
by Robert E. Harris and George Jura. Apr 65, 10p CONF-640706-1
Contract W-7405-eng-48
Presented at Sulfur Conference, Berkeley, Calif.
Distribution: No limitation.

Descriptors: (*Sulfur, High-pressure research).

UCRL-16113 Field 7D
CFSTI Prices: HC$3.00 MF$0.75
Lawrence Radiation Lab., Univ. of California, Berkeley.
REACTION DISTRIBUTION IN A POROUS ANODE.
Master's thesis,
by Richard Collin Alkire. Jun 65, 70p
Contract W-7405-eng-48
Distribution: No limitation.

Descriptors: (*Electrodes, Chemical reactions), Porous materials.

Y-1476 Field 7B, 11F
CFSTI Prices: HC$3.00 MF$0.75
Union Carbide Corp., Oak Ridge, Tenn. Y-12 Plant.
PREPARING AND SINTERING TUNGSTEN POWDER,
by C. R. Schmitt, L. R. Phillips, J. M. Googin, andC. F. Piper. 26 Mar 65, 93p
Contract W-7405-eng-26
Distribution: No limitation.

Descriptors: (*Tungsten, Sintering), (*Powder metals, Preparation).

Y-1482 Field 7B
CFSTI Prices: HC$2.00 MF$0.50
Union Carbide Corp., Oak Ridge, Tenn. Y-12 Plant.
DETERMINATION OF SUBMICROGRAM QUANTITIES OF MERCURY IN LITHIUM METAL, ITS HYDRIDE, OR HYDROXIDE,
by W. C. Dietrich. 1 Apr 65, 17p
Contract W-7405-eng-26
Distribution: No limitation.

Descriptors: (*Mercury, Chemical analysis), (*Lithium, Impurities).

8. EARTH SCIENCES AND OCEANOGRAPHY

N65-17285 Field 8N
CFSTI Prices: HC$1.00 MF$0.50
Rand Corp., Santa Monica, Calif.
THE NON-CYCLIC VARIATION DURING QUIET DAYS,
by Albert T. Price. Aug 63, 18p Rept. no. P-2759
Contract NASr21
NASA CR-51578
Distribution: No limitation.

Descriptors: (*Terrestrial magnetism, Oscillation).

N65-18536 Field 8N
CFSTI Prices: HC$2.00 MF$0.50
National Aeronautics and Space Administration. Greenbelt, Md. Goddard Space Flight Center.
THE EARTH'S MAGNETIC TAIL,
by Norman F. Ness. Dec 64. 45p NASA-TM-X-55164, X-612-64-392
Presented at the Benedum Conference on Earth Magnetism (2nd) at Pittsburgh Univ., Pa., 23 Nov 64. Prepared for presentation to the Journal of Geophysical Research. Distribution: No limitation.

Descriptors: (*Terrestrial magnetism, Topology).

N65-21721 Field 8D, 3B
CFSTI Prices: HC$2.00 MF$0.50
California Univ., La Jolla. Dept. of Earth Sciences.
Rb - Sr AGES OF CHONRULES AND CARBONACEOUS CHONDRITES,
by V. Rama Murthy and W. Compston. 1964. 33p
Grants NsG323, NsG701
NASA CR-62201
Prepared in cooperation with Australian National Univ., Canberra. Dept. of Geophysics and Geochemistry. Distribution: No limitation.

Descriptors: (*Meteorites, Radioactive isotopes).

Identifiers: Carbonaceous chondrites, Chondrules.

ORNL-P-1239 Field 8M, 18H
CFSTI Prices: HC$2.00 MF$0.50
Oak Ridge National Lab., Tenn.
MOVEMENT OF Cs137 BY RUNOFF, EROSION, AND INFILTRATION OF THE ALLUVIAL CAPTINA SILT LOAM,
by A. S. Rogowski and Tsuneo Tamura. 1963, 35p CONF-650523-1
Contract W-7405-eng-26
Presented at Symposium on Radiation and Terrestrial Ecosystems, Richland, Wash. Distribution: No limitation.

Descriptors: (*Silt, Radioactive isotopes), (*Cesium, Soils).

RME-129 (Rev.) Field 8G, 18D
CFSTI Prices: HC$2.00 MF$0.50
Grand Junction Office (AEC), Colo. Production Evaluation Div.
AIRBORNE RADIOMETRIC SURVEYING-OFFICE AND FIELD TECHNIQUES,
by Thomas L. Boyle. Jul 63, 32p
Distribution: No limitation.

Descriptors: (*Geophysical prospecting, Radiation measurement systems), (*Radiation measurement systems, Geophysical prospecting).

RME-4557 (Rev.) Field 8G
CFSTI Prices: HC$2.00 MF$0.50
Division of Raw Materials (AEC), Washington, D. C.
RECONNAISSANCE FOR URANIUM IN THE AISEN AREA, PROVINCE OF AISEN, CHILE,
by William A. Bowes, Paul H. Knowles, Maraga B. Aldo, and Serrano C. Mario. Oct 62, 25p
Prepared in cooperation with the Instituto de Investigaciones Geologicas, Santiago (Chile). Distribution: No limitation.

Descriptors: (*Geological survey, Uranium), (*Uranium, Geophysical prospecting).

UCRL-14197-T Field 8I, 18C
CFSTI Prices: HC$1.00 MF$0.50
Lawrence Radiation Lab., Univ. of California, Livermore.
ATOMIC ENERGY FOR MINING,
by David D. Rabb. 1964, 22p CONF-650535-1
Contract W-7405-eng-48
Presented at Annual Minerals Symposium (10th), Grand Junction, Colo., 7-8 May 1965. Distribution: No limitation.

Descriptors: (*Mining engineering, Nuclear explosions), (*Nuclear explosions, Mining engineering).

9. ELECTRONICS AND ELECTRICAL ENGINEERING

AD-404 623 Field 9B, 6D
CFSTI Price: HC$2.00
Stanford Research Inst., Menlo Park, Calif.
GRAPHICAL DATA PROCESSING RESEARCH STUDY AND EXPERIMENTAL INVESTIGATION.
Quarterly progress rept. no. 11, 1 Dec 62-28 Feb 63,
by A. E. Brain, G. E. Forsen, D. J. Hall and N. J. Nilsson. Mar 63, 49p
Contract DA-36-039-sc-78343
Projs. DA-3A99-22-001-02, SRI-3192
See also AD-296 473, AD-600 331. Distribution: No limitation.

Descriptors: (*Graphics, Data processing systems), (*Information retrieval, Graphics), (*Data processing systems, Pattern recognition), Coding, Learning machines, Reading machines, Digital computers, Simulation, Computer logic.

Identifiers: Minos II.

A pattern may be presented for classification either as a code word of ones and zeros or of plus ones and minus ones; weight changing in the learning machine is effected by adding the pattern vector to the weight vector. It has been found, by digital computer simulation, that convergence is secured much more rapidly when the (+ 1, - 1) representation of the input patterns is used. An intensive study has been made of the variability of the second-harmonic weights using a test procedure closely approximating the manner in which the cores will operate in the learning machine. Satisfactory performance was obtained over a useful range of drive levels. A discussion is presented of the machine logic and timing which have been worked out in detail. (Author)

AD-419 103 Field 9B
CFSTI Price: HC$4.00
Moore School of Electrical Engineering, Univ. of Pennsylvania, Philadelphia.
A SYNTAX-ORIENTED COMPILER FOR LANGUAGES WHOSE SYNTAX IS EXPRESSIBLE IN BACKUS NORMAL FORM, AND SOME PROPOSED EXTENSIONS THERETO.
Master's thesis,
by Peter Zilahy Ingerman. May 63, 150p MS-63-X4
Contract AF49 (638)-951; Grant NSF-G-14096
Distribution: No limitation.

Descriptors: (*Compilers, Programming languages), (*Programming languages, Digital computers), Programming (Computers), Coding, Functions, Computer storage devices, Operators (Mathematics), Input-output devices, Control sequences, Tables, Flow charting, Syntax, Context free grammars.

Identifiers: Backus normal form.

This paper discusses a syntax-oriented compiler for languages with a context-free syntax expressed in Backus Normal Form. The technique discussed is applicable to an iterated compilation process, where each phase of the compilation generates the rules of syntax required for the next phase of the compilation. Complete flow charts are included for the major processors; these flow charts are essentially machine-independent. Also included is a discussion of the extensions required which allow the compilation technique to be extended to context-dependent syntax, although a non-terminating compilation may result in certain cases if these extensions are included. The general technique is therefore not only shown to be extendable, but is also shown to facilitate the comparison of languages, since the idiosyncracies of individual compilers can be eliminated from the comparison.

AD-465 867 Field 9E
CFSTI Price: HC$4.00
Transducer Information Center, Battelle Memorial Inst., Columbus, Ohio.
A SUMMARY OF DIGITAL-TRANSDUCER DEVELOPMENTS AND TECHNIQUES,
by W. E. Chapin. 15 Jul 65, 103p TIC-Summary-1
Contract AF33 (615)-1819
Distribution: No limitation.

Descriptors: (*Transducers, Digital systems), Analog systems, Frequency modulation, Pulse generators, Radiofrequency generators, Optical equipment, Coding, Lasers, Telemeter systems, Flowmeters, Nuclear particles, Recording systems, Optical properties, Electromagnetic properties.

A brief review of the definitions of digital and analog transducers provides a background terminology for a discussion on the advantages and disadvantages of each type. Semi- and true digital transducers are tentatively defined in terms of time and space domains. A variety of digitizing and coding techniques are discussed prior to summarizing some significant digital-transducer research results. Manufacturers' information on currently available digital transducers is discussed. (Author)

AD-465 935 Field 9B
CFSTI Price: HC$6.00
Frank J. Seiler Research Lab., Air Force Academy, Colo.
'SLASH' ALGOL SIMULATED HYBRID COMPUTER,
by James E. Funk. 31 May 65, 226p SRL-65-1
Proj. AF-7904,
Task 790400
Distribtuion: No limitation.

Descriptors: (*Analog-digital computers, Instruction manuals), (*Programming languages, Instructional manuals), Digital computers, Analog computers, Simulation, Differential equations, Programming (Computers), Nonlinear differential equations, Computer logic.

Identifiers: Burroughs B-5500 computer, SLASH computer, ALGOL.

The Algol language program SLASH (Seiler Laboratory Algol Simulated Hybrid) is a development from the FORTRAN MIDAS program. SLASH provides Burroughs B-5000 and B-5500 users an analog simulation capability, SADSAC (Seiler Algol Digitally Simulated Analog Computer), and it also goes a step further to provide a hybrid simulation, in which the analog simulation is coupled with an Algol control program that has been tailored for a specific problem. In essence the 'control program' allows mode control of the analog program as well as adjustment of parameters and initial conditions. This hybrid character is particularly suited to the iterative optimal control problems, but it also has general application to any system of ordinary differential equations. SLASH allows a significant reduction in programming time and effort over the normal digital and analog methods; therefore, its use is quite advantageous for problems which will be run only a limited number of times without changes or modifications. (Author)

AD-466 136 Field 9E, 9A
CFSTI Prices: HC$2.00 MF$0.50
Radio Corp. of America, Somerville, N.J. Electronic Components and Devices.
TRANSISTOR, FIELD EFFECT, INSULATOR GATE, 100-MC AMPLIFIER.
Quarterly progress rept. no. 3, 1 Jan-31 Mar 65. 31 Mar 65, 30p
Contract DA-28-043-AMC-00314E,

Proj. DA-1P6-22001-A-05601
Distribution: No limitation.

Descriptors: (*Transistor amplifiers, Very high frequency), (*Transistors, Very high frequency), Radiofrequency power, Metals, Oxides, Automatic gain control, Voltage, Gain, Attenuation, Noise (Radio), Electrical properties, Distortion.

The work this quarter was directed toward the fabrication, development of associated processes, and evaluation of the Tetrode MOS. Developmental work was done on fabrication techniques which minimize center point capacitance and increase gate and drain breakdown. The present 100-MC Tetrode devices yield average power gains of 18db and noise figures of about 3db when operated at I sub DS = 2ma and V sub DS = 6 volts. The average gate breakdown is 85 volts with drain breakdown voltages greater than 15 volts. The transconductance of these units averages 2500 micro mhos. Typical AGC performance yields a 40db attenuation range with excellent dynamic signal swing and very low cross modulation over the entire range. Areas for further work are diffusion techniques, contact metalization and channel oxides. It is expected that further improvements will be made in device performance. (Author)

CEAL-1021 **Field 9E, 18D**
CFSTI Prices: HC$1.00 MF$0.50
Cambridge Electron Accelerator, Mass.
AN ACCURATE CURRENT INTEGRATOR IN THE RANGE OF 10 MINUS 5 TO 10 MINUS 9 AMPERES,
by Lewis Arthur Law, and Joel Weinstein. 14 May 65, 23p
Contract AT (30-1)-2976
Prepared in Cooperation with Harvard Univ., Cambridge, Mass. and Massachusetts Inst. of Tech., Cambridge. Distribution: No limitation.

Descriptors: (*Electric currents, Integrators), (*Integrators, Current regulators), Design.

CONF-650408-1 **Field 9B**
CFSTI Prices: HC$1.00 MF$0.50
Knolls Atomic Power Lab., Schnectady, N. Y.
THE DATAPOOL CONCEPT. A DATAPOOL SIMULATION SUBROUTINE,
by E. E. Kazmierczak and J. A. Warrington. 22 Mar 65, 17p
Contract W-31-109-eng-52
Presented at Transac Users Group, San Antonio.
Distribution: No limitation.

Descriptors: (*Computer storage devices, Data), (*Data processing systems, Computer storage devices).

Identifiers: File structures, DATAPOOL data processing system.

DP-938 **Field 9B, 18I**
CFSTI Prices: HC$2.00 MF$0.50
Du Pont De Nemours (E. I.) and Co., Aiken, S.C. Savannah River Lab.
A COMPUTER CODE FOR ONE-GROUP FLUX CALCULATIONS IN THREE DIMENSIONS,
by Julius C. English. May 65, 27p
Contract AT (07-2)-1
Distribution: No limitation.

Descriptors: (*Programming languages, Communication theory), (*Coding, Neutron flux).

N65-16268 **Field 9B**
CFSTI Prices: HC$1.00 MF$0.50
Tennessee Univ., Knoxville.
DESIGN OF TIME WEIGHTED MINIMUM ENERGY DISCRETE-DATA CONTROL SYSTEMS.
Scientific rept. no. 8,
by A. M. Revington and J. C. Hung. 1 Feb 65, 18p
Grant NsG351
NASA CR-60512
Distribution: No limitation.

Descriptors: (*Control sequences, Design).

N65-16316 **Field 9B, 20M**
CFSTI Prices: HC$2.00 MF$0.50
Lockheed Missiles and Space Co., Ala. Huntsville Research and Engineering Center.
A COMPUTER PROGRAM FOR TRANSIENT THERMAL ANALYSIS OF ARBITRARY SHELLS OF REVOLUTION.
Technical rept.,
by W. D. Whetstone. May 64, 45p LMSC/H/64-001, LMSC/HREC-A036265
Contract NAS8 11148
NASA CR-60554
Distribution: No limitation.

Descriptors: (*Structural shells, Thermal analysis), (*Programming (Computers), Bodies of revolution).

N65-16426 **Field 9F**
CFSTI Prices: HC$1.00 MF$0.50
Ohio State Univ. Research Foundation, Columbus. Antenna Lab.
RECEIVER TECHNIQUES AND DETECTORS FOR USE AT MILLIMETER AND SUBMILLIMETER WAVELENGTHS.
Semiannual rept., 1 Sep 62-28 Feb 63,
by T. E. Tice. 1 Mar 63, 10p Rept. no. 1093-14
NSG74-60
NASA CR-50177
Distribution: No limitation.

Descriptors: (*Radio receivers, Millimeter waves), (*Radiometers, Masers).

N65-16439 **Field 9B**
CFSTI Prices: HC$1.00 MF$0.50
Tennessee Univ., Knoxville. Dept. of Electrical Engineering.
DESIGN OF MINIMUM ENERGY DISCRETE-DATA CONTROL SYSTEMS.
Scientific rept. no. 7,
by A. M. Revingtor and J. C. Hung. 30 Jan 65, 20p
Grant NsG351
NASA CR-60604
Revision of manuscript submitted 15 Nov 64. Distribution: No limitation.

Descriptors: (*Data processing systems, Design).

N65-19853 **Field 9E**
CFSTI Prices: HC$2.00 MF$0.50
Stanford Research Inst., Menlo Park, Calif.
THE DESIGN OF AN EXPERIMENT TO DETERMINE THE LIMITATIONS IMPOSED ON A MULTIPLE- APERTURE ANTENNA SYSTEM BY PROPAGATION PHENOMENA.
Quarterly rept. no. 2, 1 Sep-30 Nov 64,
by J. H. Bryan, C. H. Dawson, F. G. Fernald, W. H. Foy, Jr., and J. Peschon. Dec 64, 40p
Contract NAS5 3974,
Proj. 5067
NASA CR-57398
Microfilmed from best available copy. Distribution: No limitation.

Descriptors: (*Satellite antennas, Antenna apertures), (*Antenna apertures, Satellite antennas).

N65-19854 **Field 9E**
CFSTI Prices: HC$1.00 MF$0.50
Jet Propulsion Lab., Calif. Inst. of Tech., Pasadena.
COMPUTATION OF WEIGHTED ROOT MEAN SQUARE OF PATH LENGTH CHANGES CAUSED BY THE DEFORMATIONS AND IMPERFECTIONS OF ROTATIONAL PARABOLOIDAL ANTENNAS,
by Sandra M. Barondess and Senol Utku. 1 Mar 63, 23p Technical memo. 33-118
Contract NAS7 100
NASA CR-57359
Distribution: No limitation.

Descriptors: (*Parabolic antennas, Numerical analysis), (*Performance (Engineering), Parabolic antennas).

N65-25010 **Field 9B, 5H**
CFSTI Prices: HC$3.00 MF$0.50
National Bureau of Standards, Washington, D. C.
MAGIC: A MACHINE FOR AUTOMATIC GRAPHICS INTERFACE TO A COMPUTER,
by Don E. Rippy. 29 Dec 64, 58p Rept. no. NBS-8665
Contract R09 022 039,
Projs. 4330121, 4330420
NASA CR-62897
Distribution: No limitation.

Descriptors: (*Man-machine systems, Communication systems), (*Digital computers, Display systems).

Identifiers: MAGIC.

N65-25410 **Field 9B**
CFSTI Prices: HC$2.00 MF$0.50
Georgia Inst. of Tech., Atlanta. Engineering Experiment Station.
DEVELOPMENT OF NEW METHODS AND APPLICATIONS OF ANALOG COMPUTATION. I - AN EXPERIMENTAL ELECTRONIC GENERALIZED INTEGRATOR. II - NONSTATIONARY NOISE FOR MONTE CARLO STUDIES.
Quarterly program rept. for 12 Sep-12 Dec 61,
by R. S. Johnson, F. R. Williamson, and R. D. Loftin. 12 Jan 62, 30p Rept. no. GIT/EES-A-588/P1
Contract NAS8 2473
NASA CR-63191
Distribution: No limitation.

Descriptors: (*Analog computers, Mathematical analysis), (*Integrators (Computers), Mathematical analysis).

N65-25462 **Field 9A, 10A**
CFSTI Prices: HC$2.00 MF$0.50
Clevite Corp., Cleveland, Ohio. Electronic Research Div.
DEVELOPMENT OF CADMIUM SULFIDE THIN FILM PHOTOVOLTAIC CELLS.
Quarterly rept. no. 2,
by F. A. Shirland, F. Augustine, and W. K. Bower. 12 May 65,
Contract NAS3 6461
NASA CR-54413
Distribution: No limitation.

Descriptors: (*Photoelectric cells (Semiconductors), Films), (*Cadmium compounds, Sulfides).

Identifiers: Cadmium sulfide.

N65-25969 **Field 9C**
CFSTI Prices: HC$2.00 MF$0.50
TRG, Inc., East Boston, Mass.
DESIGN OF FREE SPACE ROOMS TO IMPROVE ELECTRICAL PERFORMANCE.
Final rept.
29 Jan 65, 43p TRG-245
Contracts NAS7 100, JPL951100
NASA CR-63335
Distribution: No limitation.

Descriptors: (*Electronics laboratories, Design), (*Laboratories, Electrical properties).

N65-27378 **Field 9E**
CFSTI Prices: HC$5.00 MF$1.00
ITT Electron Tube Div., Easton, Pa.

DEVELOPMENT OF ELECTRONICALLY TUNABLE CONVERTERS IN THE MILLIMETER WAVE RANGE.
Final rept. for 16 Jul 63-16 Nov 64,
by R. J. Kenyon. 16 Nov 64, 161p
Contract NASw790
NASA CR-63630
Distribution: No limitation.

Descriptors: (*Millimeter waves, Frequency converters), (*Frequency converters, Millimeter waves).

N65-30638 **Field 9C**
CFSTI Prices: HC$2.00 MF$0.50
National Aeronautics and Space Administration, Huntsville, Ala. George C. Marshall Space Flight Center.
ANALYTICAL DETERMINATION OF TRANSFER FUNCTIONS FOR RC COMMUTATED NETWORKS,
by S. N. Carroll. Aug 65, 24p NASA-TN-D-2948
Distribution: No limitation.

Descriptors: (*Functions, Electrical networks), (*Electrical networks, Mathematical analysis).

Patent 3,210,800 **Field 9A**
QUICK DISCONNECT HINGE FOR ELECTRICAL CABLE RETRACTOR.
Patent assigned to Air Force,
by Robert W. Navarro and Ted Rajewski. 12 Oct 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Disconnect fittings, Electric cables), Patents, Electronic equipment, Packaging.

The quick disconnect hinge is for use on electrical cable retractors. The device is shown in use with a drawer of a concole used to house equipment or subassemblies of electronic equipment. The device has an extending pivotable arm for supporting a portion of a flexible cable which is severable by the one hand actuation of the extending arm. The pivoting arm is positioned over the stationary mounting element.

Patent 3,213,389 **Field 9E**
MICROSTRIP OSCILLATOR.
Patent assigned to Army,
by Morris Campi and Joseph J. Witte. 19 Oct 65

Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Microwave oscillators, Transmission lines), Patents, Printed circuits, Triodes, Very high frequency, Ultrahigh frequency, Oscillators, Feedback oscillators, Electrical impedance.

A very high frequency vacuum tube oscillator may be produced by printed circuit techniques. Strip transmission lines are used to form a resonant circuit impedance and a feed-back determining impedance for a triode oscillator. The oscillator is light weight, inexpensive to produce and performs under severe environmental conditions.

Patent 3,214,984 **Field 9C**
CHANNEL SELECTOR AND INDICATOR SYSTEM.
Patent assigned to Army,
by Edward C. Wallbrech, Donald F. Willmann andWilliam T. Wood. 2 Nov 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Channel selectors, Tuning devices), (*Tuning devices, Channel selectors), Patents.

The channel selector and indicator system is for an electrical tuner. The principles of the disclosure are applied to a tunable frequency filter for use in an electronic device. They are also applicable to multiple rank interconnected devices such as mechanical calculators. A coupling is provided between megacycle and kilocycle drive shafts whereby rotation of the kilocycle shaft causes rotation of the megacycle shaft, but rotation of the megacycle shaft has no effect on the kilocycle shaft.

Patent 3,215,865 **Field 9A**
AUTOMATIC SWITCH CONTROLLER.
Patent assigned to Army,
by Brooks H. Grimme, Jr. 2 Nov 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Electric switches, Phase control devices), (*Phase control devices, Automatic), Patents, Switching circuits, Electric shunts, Voltage, Phase (Electronic), Control systems.

The control device selectively connects a polyphase source to a load. A pair of impedance legs are provided in a three-phase circuit. They are connected in shunt between the lines to provide a switching voltage to the switching circuit if all conditions of the source are favorable to the load and to provide a non-switching voltage to the switching circuit if one or more conditions of the source are unfavorable.

Patent 3,215,927 **Field 9A**
VOLTAGE-CONTROLLED ATTENUATOR.
Patent assigned to Air Force,
by Jacob Bronstein. 2 Nov 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Attenuators, Voltage dividers), Voltage, Variable capacitors, Attenuation, Circuits, Gain, Control systems.

A variable attenuator is provided in the form of a capacitive voltage divider which makes use of voltage sensitive dividers. The capacitor has a voltage sensitive capacitor in series with it. The control voltage for the variable capacitor is provided by a power supply and a potentiometer. Input and output terminals are provided.

Patent 3,215,996 **Field 9C**
HIGH SPEED CIRCUIT INTERRUPTION DETECTOR.
Patent assigned to Navy,
by Melvin Schwartz and Richard J. Patch. 2 Nov 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Test equipment (Electronics), Electric switches), Transistors, Tunnel diodes, Patents.

The circuitry is for detecting undesired momentary or instantaneous openings or closures of electrical switch contacts in electronic and computer apparatus. The detector utilizes the bistable characteristic of a tunnel diode to sense the instantaneous switch contact interruption.

PB-168 580 **Field 9C, 9E**
CFSTI Prices: HC$1.00 MF$0.50
Bureau of Naval Weapons, Washington, D. C.
AMPLIFIER-FREQUENCY MULTIPLIER AM-3311/SRM AND RADIO RECEIVER R-1135/SRM.
Handbook instrument calibration procedures.
1 Aug 65, 19p Rept. no. NAVWEPS-17-20-BCK-5
Distribution: No limitation.

Descriptors: (*Frequency multipliers, Calibration), (*Radio receivers, Calibration), Amplifiers, Target drones, Control systems, Test sets, Instruction manuals, Test methods.

The manual describes the calibration procedure for Amplifier-Frequency Multiplier AM-3311/SRM (including its Power Supply PP-3373/SRM) and Radio Receiver R-1135/SRM. The AM-3311/SRM, which is contained in Target Control System Test Set AN/SRM-2, AN/SRM-5, and AN/SRM-6, provides radio-frequency signals within the frequency range of 406 to 549.5 megacycles. The generated r-f signals can be modulated to a maximum deviation of ±300 kilocycles when supplied with signals in the range of 300 cps to 100 kcs from an external source. The AM-3311/SRM is capable of receiving external audiofrequency signals either by the test set coder or by the AN/SRW-4 system coder. The AM-3311/SRM supplies a calibrated output amplitude variable from 1.0 to 100,000 microvolts.

PB-168 581 **Field 9C**
CFSTI Prices: HC$1.00 MF$0.50
Bureau of Naval Weapons, Washington, D. C.
AUDIO FREQUENCY DECODERS KY-432/SRM AND KY-433/SRM.
Handbook instrument calibration procedures.
1 Aug 65, 18p Rept. no. NAVWEPS-17-20BCK-7
Distribution: No limitation.

Descriptors: (*Target drones, Command + control systems), (*Command + control systems, Calibration), (*Decoding, Audiofrequency), Signals, Test sets, Instruction manuals, Test methods.

Identifiers: AN/SRW-4.

The manual describes the procedures for the calibration of Audio Frequency Decoder KY-432/SRM-3 and KY-433/SRM. The KY-432/SRM-3, which is Contained in Target Control System Test Set AN/SRM-3, is a fixedwing decoder vapable of decoding the first twenty IRIG audio-frequency tones. These tones, when generated in various selected combinations by an AN/SRW-4 system fixed-wing coder or Audio Frequency Coder KY-430/SRM, represent fixed-wing drone aircraft commands (F9F, KDA, Q2C, and KDB). After the fixed-wing tones are received by the fixed-wing decoder, either from the test set radio receiver (R-1135/SRM), Radio Receiver R-999/URW-16, or the fixed-wing AN/SRM-4 coder, they are displayed as front-panel indications. These front-panel indications, representative of the control functions of fixed-wing drone aircraft, provide instantaneous visual indications of system (fixed-wing) performance for both testing and troubleshooting.

PB-168 585 **Field 9C**
CFSTI Prices: HC$1.00 MF$0.50
Bureau of Naval Weapons, Washington, D. C.
RELAY TEST SET TS-1752/SRM-2.
Handbook instrument calibration procedures.
1 Aug 65, 8p Rept. no. NAVWEPS-17-20BCK-3
Distribution: No limitation.

Descriptors: (*Relays, Test sets), (*Test sets, Calibration), Test equipment (Electronics), Instruction manuals, Test methods.

Identifiers: AN/SRW-4.

The manual describes the calibration procedure for Relay Test Set TS-1752/SRM-2. The TS-1752/SRM-2 tests Radio Frequency Transmission Line Switch SA-631/SRW-4, and each type of relay used with Target Control System AN/SRW-4.

PB-168 586 **Field 9C**
CFSTI Prices: HC$1.00 MF$0.50
Bureau of Naval Weapons, Washington, D. C.
TRANSMITTER TEST SET TS-1753/SRM-2.
Handbook instrument calibration procedures.
1 Aug 65, 9p Rept. no. NAVWEPS-17-20BCK-4
Distribution: No limitation.

Descriptors: (*Radio transmitters, Test sets), (*Test sets, Calibration), Test equipment (Electronics), Instruction manuals, Test methods.

The manual describes the calibration procedure for Transmitter Test Set TS-1753/SRM-2. The

TS-1753/SRM2 tests the subassemblies contained in Radio Transmitter T-775/URW-14 and Radio Transmitter T-775/URW-14A. The Test Instrument provides the necessary voltages, dummy loads, controls, and indicators to individually test each transmitter subassembly.

PB-168 587 **Field 9C**
CFSTI Prices: HC$2.00 MF$0.50
Bureau of Naval Weapons, Washington, D. C.
VARIABLE COAXIAL ATTENUATORS MODELS 393A-394A (HEWLETT-PACKARD).
Technical manual instrument calibration procedure GA-01.
1 Jul 65, 31p Rept. no. NAVWEPS-17-20GA-01
Distribution: No limitation.

Descriptors: (*Attenuators, Calibration), Instruction manuals, Test methods.

The manual describes the calibration procedure for the Hewlett-Packard 393A or 394A variable coaxial attenuator.

PB-168 588 **Field 9C**
CFSTI Prices: HC$1.00 MF$0.50
Bureau of Naval Weapons, Washington, D. C.
ENGINE-ROTOR SYSTEM TEST SET AN/USM-202; PART NO. Y63-315880-481-1.
Instrument calibration procedure manual.
15 Jul 65, 16p Rept. no. NAVWEPS-17-20QT-08
Distribution: No limitation.

Descriptors: (*Target drones, Engines ; motors), (*Engines ; motors, Test sets), (*Test sets, Calibration), Impellers, Monitors, Instruction manuals, Test methods, Test equipment.

The manual describes the procedure for calibration of the Engine-Rotor System Test Set AN/USM-202. The Test Set AN/USM-202, PN Y63-315880-481-1, is a portable line maintenance tester which provides test and monitoring functions necessary to test the operation of Navy Model QH-50C Drone engine-rotor system. The Test Instrument consists of five panels, two tachometer-generators, four temperature probes, and the interconnecting cable assemblies.

PB-168 618 **Field 9C, 12A**
CFSTI Prices: HC$3.00 MF$0.75
Purdue Univ., Lafayette, Ind. School of Electrical Engineering.
A UNIFIED N-PORT SYSTEM THEORY.
Technical rept.,
by L. O. Chua and B. J. Leon. Sep 65, 91p TR-EE65-18
Grant NSF-GK-26
Distribution: No limitation.

Descriptors: (*Electrical networks, Mathematical models), Matrix algebra, Transformations (Mathematics), Excitation, Response, Electrical impedance, Complex variables, Vector analysis.

Identifiers: N-port networks.

A unified treatment of the n-port system theory is obtained through the introduction of a 'Canonic Space' which is related to the excitation-response space by a one-to-one transformation. Any linear n-port system is completely characterized by a canonic matrix and its associated weighting matrix. The transformation from one characterization into another is readily accomplished, and arbitrary interconnection of n-port networks can be systematically studied. The concepts of reciprocity, power, energy and passivity are given a unified treatment. The 'Reciprocity Matrix' and the 'Characteristic Matrix' are shown to be intimately related to the reciprocity and passivity of any n-port system. A simple universal n-port model is formulated for formally realizing n-port networks of arbitrary characterization. Even singular networks, such as the 'NULLOR', are readily realized by the universal model. As an application of the unified theory, the theory of scattering matrix normalized to complex port numbers, as well as real port numbers, is developed as a special case of the unified theory. (Author)

PB-168 633 **Field 9A**
CFSTI Prices: HC$2.00 MF$0.50
Bureau of Naval Weapons, Washington, D. C.
COAXIAL LOW PASS FILTERS 360 SERIES (HEWLETT-PACKARD).
Technical manual instrument calibration procedure GN-05.
15 Jun 65, 29p Rept. no. NAVWEPS-17-20GN-05
Distribution: No limitation.

Descriptors: (*Band-pass filters, Coaxial filters), (*Coaxial filters, Calibration), Instruction manuals, Test methods.

The manual describes the measurement of the insertion loss, frequency rejection, and VSWR of the HewlettPackard models 360A, 360B, 360C, and 360D low pass filters.

PB-168 657 **Field 9C**
CFSTI Prices: HC$1.00 MF$0.50
Boeing Co., Seattle, Wash. Aero-Space Div.
RF MILLIVOLTMETER 411A (HEWLETT-PACKARD).
Technical manual instrument calibration procedure AE-32.
15 Sep 65, 11p
Contract N123 (62861)35056A
NAVWEPS 17-20AE-32
Distribution: No limitation.

Descriptors: (*Radiofrequency, Voltmeters), (*Voltmeters, Calibration), (*Test equipment (Electronics, Voltmeters), Instruction manuals, Test methods.

The manual describes the calibration procedure for the Hewlett-Packard 411A RF Millivoltmeter, with the Type 411A-21E probe, which is portable and capable of measuring radio frequency voltages from below 10 millivolts to 10 volts over a frequency range of 500 kc through 500 Mc.

PB-168 664 **Field 9E**
CFSTI Prices: HC$1.00 MF$0.50
Boeing Co., Seattle, Wash. Aero-Space Div.
DRIVER AMPLIFIER/POWER SUPPLY AND AC-DC PREAMPLIFIER 150-200B/400 AND 150-1000 (SANBORN).
Technical manual instrument calibration procedure AE-37.
15 Jul 65, 18p
Contract N123 (62861)35056A
NAVWEPS 17-20AE-37
Distribution: No limitation.

Descriptors: (*Powers supplies, Calibration), (*Amplifiers, Calibration), (*Preamplifiers, Calibration), Instruction manuals, Test methods.

The manual describes the calibration procedure for the Sanborn 150-200B/400 driver amplifier/power supply and the 150-1000 AC-DC preamplifier. The driver amplifier amplifies signals supplied to it by the AC-DC preamplifier and then drives the stylus of an associated Sanborn recorder such as a 154-100B.

PB-168 665 **Field 9C**
CFSTI Prices: HC$1.00 MF$0.50
Boeing Co., Seattle, Wash. Aero-Space Div.
RANDOM-NOISE GENERATOR MODEL 1390-A (GENERAL RADIO CO.)
Technical manual instrument calibration procedure AG-83.
1 Sep 65, 12p
Contract N123 (62861)35056A
NAVWEPS 17-20AG-83
Distribution: No limitation.

Descriptors: (*Noise generators, Calibration), (*Test equipment (Electronics), Noise generators), Instruction manuals, Test methods.

The manual describes the calibration procedures for the General Radio Co. 1390-A Random-noise Generator. The Test Instrument provides a high level of electrical noise output.

PB-168 666 **Field 9C**
CFSTI Prices: HC$2.00 MF$0.50
Boeing Co., Seattle, Wash. Aero-Space Div.
OSCILLOSCOPE AN/USM-117.
Technical manual instrument calibration procedure AW-30.
1 Jul 65, 27p
Contract N123 (62861)35056A
NAVWEPS 17-20AW-30
Distribution: No limitation.

Descriptors: (*Oscilloscopes, Calibration), (*Test equipment (Electronics), Oscilloscopes), Preamplifiers, Instruction manuals, Test methods.

The manual describes the calibration procedures for the AN/USM-117 oscilloscope, which includes the OS-106/USM117 indicator and the MX-2996/USM-117 preamplifier. The Test Instrument has calibrated sweep speeds, calibrated horizontal and vertical sensitivities, square wave calibrator, provisions for triggering from either internal or external sources, and provides a viewing area of 2 x 3 inches.

PB-168 667 **Field 9C**
CFSTI Prices: HC$1.00 MF$0.50
Boeing Co., Seattle, Wash. Aero-Space Div.
AUDIO LEVEL METER ME-49/URM-38 AND ME-92/URM-38A.
Technical manual instrument calibration procedure AP-06.
15 Jul 65, 10p
Contract N123 (62861)35056A
NAVWEPS 17-20AP-06
Distribution: No limitation.

Descriptors: (*Audiometry, Test equipment (Electronics)), (*Test equipment (Electronics), Calibration), Instruction manuals, Test methods.

The manual describes the calibration procedure for the ME-49/URM-38 and ME-92/URM-38A Audio Level Meters which includes a round hermetically sealed DC meter having three db ranges.

SC-DR-65-249 **Field 9C**
CFSTI Prices: HC$1.00 MF$0.50
Sandia Corp., Albuquerque, N. Mex.
MULTIAPPLICATION DC RESISTANCE MODULE (U3487),
by D. A. Branscombe. Jun 65, 13p
Contract AT (29-1)-789
Distribution: No limitation.

Descriptors: (*Modules (Electronic), Test equipment), (*Resistance (Electrical), Direct current).

TID-21720 **Field 9A**
CFSTI Prices: HC$1.00 MF$0.50
Westinghouse Electric Corp., Elmira, N. Y. Electronic Tube Div.
DEVELOPMENT OF A HIGH SPEED PHOTOMULTIPLIER.
Progress rept. for 2 Jul 64-2 Jan 65,
by G. R. Feaster and L. D. Owen. 2 Jan 65, 24p
Contract AT (30-1)-2825
Distribution: No limitation.

Descriptors: (*Photomultipliers, Design), Manufacturing methods, Electron tubes.

TID-21898 **Field 9A**
CFSTI Prices: HC$3.00 MF$0.75
Tennessee Univ., Knoxville. Dept. of Electrical . Engineering.
A STUDY OF TRANSISTOR HIGH-SPEED SCHMITTTRIGGER CIRCUITS.
Scientific rept., no. 12,

by G. R. Alspaugh and J. F. Pierce. 1 Nov 63, 80p
Contract W-7405-eng-26
Distribution: No limitation.

Descriptors: (*Trigger circuits, Transistors), (*Transistors, Trigger circuits).

TID-21900 **Field 9A, 9C**
CFSTI Prices: HC$3.00 MF$0.75
Tennessee Univ., Knoxville. Dept. of Electrical Engineering.
A TEMPERATURE-COMPENSATED, LOW-POWER ASSYMMETRIC STABLE MULTIVIBRATOR.
Scientific rept. no. 9,
by J. C. Brooks, E. J. Kennedy, and J. F. Pierce. 20 Aug 63, 92p
Contract W-7405-eng-26
Distribution: No limitation.

Descriptors: (*Relaxation oscillators, Transistors), (*Transistors, Relaxation oscillators), Thermal stability.

TID-21924 **Field 9A**
CFSTI Prices: HC$3.00 MF$0.75
Tennessee Univ., Knoxville. Dept. of Electrical Engineering.
AN EVALUATION OF TWO PROPOSED NOISE MODELS FOR THE FIELD-EFFECT TRANSISTOR.
Scientific rept. no. 10,
by U. E. Hilger, T. V. Blalock, and J. F. Pierce. 21 Aug 63, 86p
Contract W-7405-eng-26
Distribution: No limitation.

Descriptors: (*Transistors, Models (Simulations)), (*Noise, Models (Simulations)).

TID-21934 **Field 9A, 9E**
CFSTI Prices: HC$4.00 MF$1.00
Tennessee Univ., Knoxville. Dept. of Electrical Engineering.
FAST TUNNEL-DIODE MONOSTABLE MULTIVIBRATORS.
Scientific rept. no. 13,
by J. M. Oliphant and J. F. Pierce. 15 Jun 64, 123p
Contract W-7405-eng-26
Distribution: No limitation.

Descriptors: (*Tunnel diodes, Relaxation oscillators), (*Relaxation oscillators, Tunnel diodes).

10. ENERGY CONVERSION (NON-PROPULSIVE)

AD-289 503 **Field 10A, 7D**
CFSTI Price: HC$3.00
Westinghouse Research Labs., Pittsburgh, Pa.
A STUDY OF THE ADSORPTION MECHANISMS ON OXYGEN ELECTRODES.
Rept. no. 3 (Final) 15 Jul 61-15 Jul 62,
by Y. L. Sandler. 1 Aug 62, 83p
Contract DA-36-039-sc-89138, ARPA Order-226-61
Distribution: No limitation.

Descriptors: (*Fuel cells, Cathodes), (*Cathodes, Fuel cells), (*Oxygen, Electrodes), (*Electrodes, Adsorption), Exchange reactions, Hydrogen, Electrical conductance, Mass spectroscopy, Dissociation, Chemisorption, Silver, Gold, Impurities, Monomolecular films, Powder metals.

Attention is drawn to the possible influence of the mode of adsorption of oxygen on the potential of an oxygen electrode and on the oxygen dissolution mechanism. A reversible, dissociative type of adsorption appears to be required to obtain a reversible oxygen potential. At moderate temperatures, however, other types of chemisorption appear to exist which are non-dissociative. Results obtained with silver, gold and a silver-gold alloy are presented. With silver different types of interaction were found in different temperature regions. No chemisorption of oxygen by gold took place, in absence or presence of water, when the gold surface was clean. Carbonaceous contaminants present in the metals of otherwise high purity were found to have a strong influence on the results. Study of the magnetic ortho-para conversion of hydrogen on a carefully cleaned silver powder surface revealed that the surface after contact with hydrogen at 500C is covered with a monolayer of a paramagnetic species. It is tentatively concluded that this is an impurity layer which is difficult to remove from metal powders. (Author)

MND-3043-1 **Field 10A, 13J, 18B**
CFSTI Prices: HC$2.00 MF$0.50
Martin Co., Baltimore, Md. Nuclear Div.
STRONTIUM 90-FUELED THERMOELECTRIC GENERATOR POWER SOURCE FOR FIVE-WATT U. S. COAST GUARD LIGHT BUOY. ADDENDUM I,
by W. Kenneth Nichols, Jr. and William A. McDonald. Apr 64, 36p
Contract AT (30-1)-3043
MND P-2720 add 1
Distribution: No limitation.

Descriptors: (*Buoys, Marker lights), (*Thermoelectricity, Marker lights).

N65-16322 **Field 10C**
CFSTI Prices: HC$4.00 MF$0.75
Boeing Co., Seattle, Wash.
EVALUATION OF SILVER-CADMIUM BATTERIES.
Final rept.,
by J. T. Mac Lean and F. S. Kemp. 1963, 114p
Rept. no. D2-20496-1
Contract NAS5 2155
NASA CR-60574
Report prepared for Yardney Electric Corp., New York, N. Y. Distribution: No limitation.

Descriptors: (*Alkaline cells, Tests), (*Batteries + components, Tests).

Identifiers: Silver-cadmium cells.

N65-17200 **Field 10C**
CFSTI Prices: HC$2.00 MF$0.50
Battelle Memorial Inst., Columbus, Ohio.
DEVELOPMENT OF LARGE-INTERNAL-SURFACEAREA NICKEL METAL PLAQUES.
Quarterly rept. no. 2, 18 Sep-18 Dec 64,
by J. McCallum, G. R. Schaer, D. G. Trevethan, and C. L. Faust. 15 Jan 65, 46p
Contract NAS3 6003
NASA CR-54299
Distribution: No limitation.

Descriptors: (*Batteries + components, Nickel), (*Nickel, Batteries + components).

N65-17257 **Field 10A**
CFSTI Prices: HC$3.00 MF$0.50
Electro-Optical Systems, Inc., Pasadena, Calif.
HYDROGEN-OXYGEN ELECTROLYTIC REGENERATIVE FUEL CELLS.
Semiannual rept.,
by M. Klein and E. Findl. 1 Feb 65, 55p Rept. EOS-4110-2Q-2
Contract NAS3 2781
NASA CR-54279
Distribution: No limitation.

Descriptors: (*Fuel cells, Design).

N65-17531 **Field 10A, 20L**
CFSTI Prices: HC$4.00 MF$0.75
Massachusetts Inst. of Tech., Cambridge. Center for Space Research.
FUNDAMENTAL RESEARCH IN SOLID STATE ENERGY CONVERSION PROCESSES.
Semiannual technical summary rept. no. 3, 1 Jun-30 Nov 64.
30 Nov 64, 110p
Grant NsG496 (Part)
NASA CR-60838
Distribution: No limitation.

Descriptors: (*Energy conversion, Semiconductors), (*Semiconductors, Energy conversion).

N65-17949 **Field 10B**
CFSTI Prices: HC$2.00 MF$0.50
Electro-Optical Systems, Inc., Pasadena, Calif.
FEASIBILITY STUDY TOWARD DEVELOPMENT OF RADIATION RESISTANT SOLAR CELL.
Interim Engineering Rept., 1 Jul-31 Oct 62,
by S. Kaye. 30 Nov 62, 44p EOS-2080-1R-2
Contract NAS7-92
NASA CR-60973
Distribution: No limitation.

Descriptors: (*Solar cells, Electromagnetic waves).

N65-18448 **Field 10A**
CFSTI Prices: HC$3.00 MF$0.75
Electro-Optical Systems, Inc., Pasadena, Calif.
FEASIBILITY STUDY TOWARD DEVELOPMENT OF RADIATION RESISTANT SOLAR CELL.
Final rept. for 1 Nov 61-31 Jan 63,
by M. Cheslow and S. Kaye. 28 Feb 63, 72p
Rept. no. EOS-2080-Final
Contract NAS7 92
NASA CR-57134
Distribution: No limitation.

Descriptors: (*Solar cells, Radiation damage), (*Energy conversion, Solar cells).

N65-18485 **Field 10A**
CFSTI Prices: HC$1.00 MF$0.50
Radio Corp. of America, Mountaintop, Pa. Special Electronic Components Div.
DEVELOPMENT OF IMPROVED GALLIUM ARSENIDE SOLAR CELLS.
Quarterly progress rept. no. 2, 1 Oct-31 Dec 64.
22 Jan 65, 24p
Contract NAS5 9006
NASA CR-57117
Distribution: No limitation.

Descriptors: (*Solar cells, Gallium alloys), (*Gallium alloys, Arsenic alloys).

Identifiers: Gallium arsenide.

N65-18535 **Field 10A, 11F**
CFSTI Prices: HC$2.00 MF$0.50
Huyck Corp., Milford, Conn.
PREPARATION AND EVALUATION OF FIBER METAL NICKEL BATTERY PLAQUES.
Quarterly progress rept. no. 2, 1 Nov 64-31 Jan 65,
by J. L. Bidler and J. I. Fisher. 1965, 36p
Contract NAS3 6006
NASA CR-54314
Distribution: No limitation.

Descriptors: (*Batteries + components, Preparation), (*Nickel, Batteries + components), (*Fiber metallurgy, Batteries + components).

N65-18934 **Field 10A**
CFSTI Prices: HC$5.00 MF$1.00
Monsanto Co., St. Louis, Mo. Central Research Dept.
DEVELOPMENT OF IMPROVED SINGLE CRYSTAL GALLIUM PHOSPHIDE SOLAR CELLS.
Final rept. for 12 Jun 63-12 Aug 64,
by W. O. Groves and A. S. Epstein. 1964, 162p

Contract NAS3 2776
NASA CR-54273
Distribution: No limitation.

Descriptors: (*Solar cells, Single crystals), (*Gallium compounds, Phosphides).

Identifiers: Gallium phosphide.

N65-19504 **Field 10C**
CFSTI Prices: HC$3.00 MF$0.75
Livingston Electronic Corp., Montgomeryville, Pa.
DEVELOPMENT OF HIGH ENERGY DENSITY PRIMARY BATTERIES 200 WATT HOURS PER POUND TOTAL BATTERY WEIGHT MINIMUM.
Quarterly rept. no. 2, 10 Sep-9 Dec 64,
byWilliam F. Meyers and Sandora G. Abens. 9 Dec 64, 84p
Contract NAS3 6004
NASA CR-54307
Distribution: No limitation.

Descriptors: (*Primary cells, Electrochemistry), (*Batteries + components, Electrochemistry).

N65-19687 **Field 10B**
CFSTI Prices: HC$3.00 MF$0.75
Electro-Optical Systems, Inc., Pasadena, Calif.
DEVELOPMENT OF AN IMPROVED RADIATION RESISTANT SOLAR CELL.
Final Rept., 27 Sep 63-27 Dec 64,
by G. P. Rolik. 1964, 81p EOS-4370
Contract NAS5-3560
NASA CR-57287
Distribution: No limitation.

Descriptors: (*Solar cells, Electromagnetic waves), (*Electric fields, Solar cells).

N65-19697 **Field 10B**
CFSTI Prices: HC$1.00 MF$0.50
Electro-Optical Systems, Inc. Pasadena, Calif.
RESEARCH AND DEVELOPMENT TECHNIQUES FOR FABRICATION OF LIGHT WEIGHT SOLAR CONCENTRATORS.
Addendum rept.,
by M. A. Pichel. 21 Dec 62, 14p EOS-2100
Contract NAS7-86
NASA CR-57346;
Distribution: No limitation.

Descriptors: (*Solar collectors, Copper).

N65-20801 **Field 10A, 11G**
CFSTI Prices: HC$2.00 MF$0.50
John Jay Hopkins Lab. for Pure and Applied Science, General Atomic, San Diego, Calif.
STUDIES OF THERMONIC MATERIALS FOR SPACE POWER APPLICATIONS.
Informal monthly rept. for 1 Dec-31 Dec 63.
31 Dec 63, 29p
Contract NAS3 4165,
Proj. 373
NASA CR-57653
Distribution: No limitation.

Descriptors: (*Thermonic generators, Materials).

N65-20803 **Field 10A, 11G**
CFSTI Prices: HC$2.00 MF$0.50
John Jay Hopkins Lab. for Pure and Applied Science, General Atomic, San Diego, Calif.
STUDIES OF THERMONIC MATERIALS FOR SPACE POWER APPLICATIONS.
Information monthly rept. for 1 Jan-31 Jan 64.
31 Jan 64, 44p
Contract NAS3 4165,
Proj. 373
NASA CR-57654
See also N65-20803. Distribution: No limitation.

Descriptors: (*Thermonic generators, Materials).

N65-20805 **Field 10A, 10B**
CFSTI Prices: HC$1.00 MF$0.50
Electro-Optical Systems, Inc., Pasadena, Calif.
HYDROGEN-OXYGEN ELECTROLYTIC REGENERATIVE FUEL CELLS,
by Harvey Frank. 10 Apr 64, 3p EOS-4110-M-7
Contract NAS3-2781
NASA CR-57663
Distribution: No limitation.

Descriptors: (*Fuel cells, Design).

N65-20806 **Field 10A, 10B**
CFSTI Prices: HC$1.00 MF$0.50
Electro-Optical Systems, Inc. Pasadena, Calif.
HYDROGEN OXYGEN ELECTROLYTIC REGENERATIVE FUEL CELLS,
by Harvey Frank. 10 Jun 64, 6p EOS-4110-ML-9
Contract NAS3-2781
NASA CR-57770
Distribution: No limitation.

Descriptors: (*Fuel cells, Design).

N65-20807 **Field 10A, 10B**
CFSTI Prices: HC$1.00 MF$0.50
Electro-Optical Systems, Inc., Pasadena, Calif.
HYDROGEN-OXYGEN ELECTROLYTIC REGENERATIVE FUEL CELLS,
by Harvey Frank. 10 Dec 63, 9p EOS-4110-M-4
Contract NAS3-2781
NASA CR-57665
Distribution: No limitation.

Descriptors: (*Fuel cells, Design).

N65-20808 **Field 10A, 10B**
CFSTI Prices: HC$1.00 MF$0.50
Electro-Optical Systems, Inc., Pasadena, Calif.
HYDROGEN-OXYGEN ELECTROLYTIC REGENERATIVE FUEL CELLS,
by E. Findl. 15 Aug 64, 11p EOS-4110-ML-10
Contract NAS3-2781
NASA CR-57666
Distribution: No limitation.

Descriptors: (*Fuel cells, Design).

N65-20809 **Field 10A, 10B**
CFSTI Prices: HC$1.00 MF$0.50
Electro-Optical Systems, Inc., Pasadena, Calif.
HYDROGEN-OXYGEN ELECTROLYTIC REGENERATIVE FUEL CELLS,
by John J. Rowlette. 11 Nov 63, 11p EOS-4110-M-3
Contract NAS3-2781
NASA CR-57668
Distribution: No limitation.

Descriptors: (*Fuel cells, Design).

N65-20810 **Field 10A, 10B**
CFSTI Prices: HC$1.00 MF$0.50
Electro-Optical Systems, Inc., Pasadena, Calif.
HYDROGEN-OXYGEN ELECTROLYTIC REGENERATIVE FUEL CELLS,
by Harvey Frank. 10 May 64, 7p EOS-4110-M-8
Contract NAS3-2781
NASA CR-57669
Distribution: No limitation.

Descriptors: (*Fuel cells, Design).

N65-20811 **Field 10A, 10B**
CFSTI Prices: HC$1.00 MF$0.50
Electro-Optical Systems, Inc., Pasadena, Calif.
HYDROGEN-OXYGEN ELECTROLYTIC REGENERATIVE FUEL CELLS,
by Harvey Frank. 10 Feb 64, 6p EOS-4110-M-5
Contract NAS3-2781
NASA CR-57671
Distribution: No limitation.

Descriptors: (*Fuel cells, Design).

N65-20813 **Field 10A, 10B**
CFSTI Prices: HC$f.00 MF$0.50
Electro-Optical Systems, Inc., Pasadena, Calif.
HYDROGEN-OXYGEN ELECTROLYTIC REGENERATIVE FUEL CELLS,
by M. Klein. 10 Oct 64, 12p EOS-4110-ML-12
Contract NAS3-2781
NASA CR-57662
Distribution: No limitation.

Descriptors: (*Fuel cells, Design).

N65-22103 **Field 10A**
CFSTI Prices: HC$2.00 MF$0.50
Allis-Chalmers Manufacturing Co., Milwaukee, Wis. Research Div.
RESEARCH AND DEVELOPMENT ON FUEL CELL SYSTEMS.
Quarterly progress rept. no. 1 for period ending 30 Sep 64 (Revised ed.),
by J. L. Platner. 20 Jan 65, 50p
Contract NAS8 2696
NASA CR-59455
Revision of rept. dated 30 Oct 64. Distribution: No limitation.

Descriptors: (*Fuel cells, Construction).

N65-24025 **Field 10A, 10C**
CFSTI Prices: HC$2.00 MF$0.50
Unified Science Associates, Inc., Pasadena, Calif.
GASEOUS ELECTROLYTES FOR BATTERIES AND FUEL CELLS.
Quarterly rept. no. 2 for 21 Nov 64-20 Feb 65,
by S. Naiditch. 20 Feb 65, 36p
NAS7 326
NASA CR-62791
Distribution: No limitation.

Descriptors: (*Electrolytes, Gases), (*Energy conversion, Electrolytes), (*Batteries, Electrolytes), (*Fuel cells, Electrolytes).

N65-24843 **Field 10A**
CFSTI Prices: HC$2.00 MF$0.50
Douglas Aircraft Co., Inc., Santa Monica, Calif. Missile and Space Systems Div.
INORGANIC ION EXCHANGE MEMBRANE FUEL CELL,
Quarterly progress rept.,
by C. Berger, M. P. Strier, and G. Belfort. Apr 65, 50p Rept. no. SM-46221-Q3
Contract NAS3 6000
NASA CR-54379
Distribution: No limitation.

Descriptors: (*Fuel cells, Ion exchange), (*Ion exchange, Fuel cells).

N65-24874 **Field 10A**
CFSTI Prices: HC$6.00 MF$1.50
Electro-Optical Systems, Inc., Pasadena, Calif.
ANALYSIS OF ANCILLARY EQUIPMENT FOR SOLAR- THERMIONIC SYSTEM. VOLUME II: TECHNICAL BACKGROUND.
Final rept.
10 Mar 65, 273p EOS-4326
Contracts NAS7-100, JPL-950699,
Task 3
NASA CR-62977
Distribution: No limitation.

Descriptors: (*Solar radiation, Thermionic converters), (*Thermionic converters, Solar radiation).

N65-25272 **Field 10A, 22B**
CFSTI Prices: HC$2.00 MF$0.50
National Aeronautics and Space Administration, Washington, D. C. Scientific and Technical Information Div.
ELECTRICAL POWER GENERATION SYSTEMS FOR SPACE APPLICATIONS.
1965, 42p NASA-SP-79, NASA-TM-X-1089
Distribution: No limitation.

Descriptors: (*Energy conversion, Solar radiation), (*Spacecraft, Power supplies), Solar cells.

N65-25374 **Field 10C, 7B**
CFSTI Prices: HC$3.00 MF$0.75
Goulton Industries, Inc. Alkaline Battery Div.
INVESTIGATION OF BATTERY ACTIVE NICKEL OXIDES.
Quarterly rept., no. 3, 13 Dec 64-13 Mar 65,
by P. Ritterman. 13 Mar 65, 67p
Contract NAS3 4178
NASA CR-54402
Distribution: No limitation.

Descriptors: (*Batteries + components, Nickel compounds), (*Nickel compounds, Oxides).

Identifiers: Nickel oxides.

N65-25404 **Field 10C**
CFSTI Prices: HC$4.00 MF$1.00
Cook Electric Co., Dayton, Ohio. Inland Testing Labs.
TESTING AND EVALUATION OF NICKEL-CADMIUM SPACECRAFT-TYPE CELLS.
Final technical rept.,
by I. F. Luke and E. A. Roeger. 1965, 145p
Contract NAS5 1048
NASA CR-63181
Distribution: No limitation.

Descriptors: (*Batteries + components, Spaceborne), (*Alkaline cells, Spaceborne).

N65-26021 **Field 10C, 13H**
CFSTI Prices: HC$1.00 MF$0.50
Huyck Metals Co., Milford, Conn.
PREPARATION AND EVALUATION OF FIBER METAL NICKEL BATTERY PLAQUES.
Quarterly progress rept. no. 3, 1 Feb-30 Apr 65,
by J. L. Bidler and J. I. Fisher. 1965, 18p
Huyck-805- (F3-25)
Contract NAS3-6006
NASA CR-54414
Distribution: No limitation.

Descriptors: (*Fiber metallurgy, Batteries + components), (*Nickel, Fiber metallurgy).

N65-27367 **Field 10C**
CFSTI Prices: HC$5.00 MF$1.00
Delco-Remy Div. General Motors Corp., Anderson, Ind.
HEAT STERILIZABLE SILVER-ZINC BATTERY INVESTIGATION.
Final rept.,
by R. S. Bogner. 15 Mar 65, 152p
Contract NAS7 100
NASA CR-63597
Distribution: No limitation.

Descriptors: (*Alkaline cells, Purification), (*Batteries + components, Purification).

N65-27738 **Field 10A**
CFSTI Prices: HC$2.00 MF$0.50
Union Carbide Corp., Parma, Ohio Research Lab.
STUDY PROGRAM TO IMPROVE FUEL CELL PERFORMANCE BY PULSING TECHNIQUES.
Third quarterly rept. no. 3. 31 May 65,
by M. L. Kronenberg. 1965, 30p
Contract NAS3 6460
NASA CR-54437
Distribution: No limitation.

Descriptors: (*Fuel cells, Performance (Engineering)), (*Electric discharges, Fuel cells).

N65-29784 **Field 10A**
CFSTI Prices: HC$1.00 MF$0.50
National Aeronautics and Space Administration, Cleveland, Ohio. Lewis Research Center.
RADIATION DAMAGE TO CADMIUM SULFIDE SOLAR CELLS,
by Henry W. Brandhorst, Jr. and Russell E. Hart, Jr. Jul 65, 16p NASA-TN-D-2932
Distribution: No limitation.

Descriptors: (*Solar cells, Radiation damage), Cadmium compounds, Sulfides.

Identifiers: Cadmium sulfide.

N65-32186 **Field 10A, 13H**
CFSTI Prices: HC$2.00 MF$0.50
Tyco Labs., Inc., Waltham, Mass.
THERMOELECTRIC BONDING STUDY: THE BONDING OF PbTe AND PbTe-SnTe WITH NON-MAGNETIC ELECTRODES,
by M. Weinstein and H. E. Bates. Sep 65, 45p
Contract NAS5 3986
NASA CR-290
Distribution: No limitation.

Descriptors: (*Bonding, Thermoelectricity), (*Tellurides, Bonding), (*Thermoelectricity, Bonding).

Identifiers: Lead tellurides, Tin tellurides.

NAA-SR-11430 **Field 10-, 18L, 18N**
CFSTI Prices: HC$4.00 MF$0.75
Atomics International, Canoga Park, Calif.
PRELIMINARY SNAPSHOT-1 PERFORMANCE. SUMMARY,
ed. by R. M. Galantine. 1 Aug 65, 101p
Contract AT (11-1)-GEN-8
Distribution: No limitation.

Descriptors: (*Auxiliary power plants, Spacecraft), (*Power reactors, Energy conversion).

Identifiers: Snapshot-1.

Patent 3,208,883 **Field 10A**
HYDROGEN-HYDRIDE CELL.
Patent assigned to AEC,
by Carl E. Crouthamel and Robert R. Heinrich. 28 Sep 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Fuel cells, Hydrogen), (*Hydrogen, Fuel cells), Hydrides, Patents.

The operation of hydrogen-hydride cells is improved by placing an alpha source such as an alpha-emitting isotope or isotope mixture on the hydrogen or gas side of the barrier-electrode, or opposite the hydride or fused electrolyte, side. This results in an increased amperage output for a cell of given dimensions and other characteristics, and is due to the fact that the output-determining step in the cell operation is the rate of diffusion of hydrogen through the barrierelectrode.

TID-7687 Supplement **Field 10C**
CFSTI Prices: HC$1.00 MF$0.50
Institute for Direct Energy Conversion, Univ. of Pennsylvania, Philadelphia.
THERMOPHYSICAL AND TRANSPORT PROPERTIES OF HIGH TEMPERATURE ENERGY STORAGE MATERIALS,
by R. A. Sharma and H. Chang. 1963, 12p
CONF-458-3
Contract AT (30-1)-2202; Grant NsG316
Presented at the 3rd Annual Symposium on High Temperature Conversion Heat to Electricity, Tucson, Ariz., Feb. 1964. Distribution: No limitation.

Descriptors: (*Solar radiation, Storage).

11. MATERIALS

AD-460 483 **Field 11I**
CFSTI Price: HC$2.00
Naval Ordnance Lab., White Oak, Md.
THE COMPRESSIBILITY OF CROSSLINKED POLYMERS,
by R. W. Warfield. 18 Feb 65, 30p NOLTR-64-243
Distribution: No limitation.

Descriptors: (*Polymers, Compressive properties), (*High-pressure research, Polymers), Crosslinking (Chemistry), Phase studies, Transformations, Thermodynamics.

Bulk compressibilities of a series of crosslinked polymers were measured at pressures up to 10,000 atmospheres and over the temperature range of 25 to 250C. These polymers exhibited non-linear compressibility characteristics reaching a maximum compressibility of about 15% at 10,000 atmospheres and decreasing with increasing pressure. By conducting the measurements at slow speeds, data were obtained which could be expressed as glass-rubber phase diagrams. The nature of the observed compressibilities is discussed and the variation of the glass transition with pressure is analyzed on the basis of Ehrenfest thermodynamics. (Author)

AD-460 502 **Field 11H, 13I**
CFSTI Price: HC$3.00
Arnold Engineering Development Center, Arnold Air Force Station, Tenn.
TESTS OF DRY COMPOSITE LUBRICATED GEARS FOR USE IN AN AEROSPACE ENVIRONMENTAL CHAMBER,
by T. L. Ridings. Mar 65, 55p AEDC-TR-65-45
Distribution: No limitation.

Descriptors: (*Gears, Lubrication), (*Lubrication, Gears), (*Films, Lubricants), Space simulation chambers, Greases, Powders, Powder metals, Halocarbon plastics, Salts, Tungsten compounds, Selenides, Lubricant additives, Molybdenum compounds, Sulfides, Composite materials, Test methods.

Identifiers: Molybdenum disulfide.

The report contains the results of a test program set up to detemine the operational characteristics of dry composite lubricated gears. Two diametral pitch sizes, 7 and 12, and two gear materials, nitralloy steel and nodular iron, were tested. Three dry composite lubricants and one low vapor pressure grease were tested. All three dry composite lubricants provided adequate lubrication for periods of up to 300 hr at 100 rpm with very little wear of either load gears or lubricating idlers. The MoS2-fortified, grease-lubricated gears failed after 40 hr of operation. (Author)

AGN-8154 **Field 11F, 20D, 20M**
CFSTI Prices: HC$1.00 MF$0.50
Aerojet-General Nucleonics, San Ramon, Calif.
ALKALI METALS EVALUATION PROGRAM.
Quarterly progress rept. for 1 Apr-30 Jun 65,
by P. Y. Achener, E. D. Parr, and C. R. Fisher. Jul 65, 25p
Contract AT (04-3)-368
Distribution: No limitation.

Descriptors: (*Alkali metals, Physical properties), (*Thermodynamics, Alkali metals), (*Transport properties, Alkali metals).

798-319 O - 66 - 14

BM-RI-6636 **Field 11F**
CFSTI Prices: HC$2.00 MF$0.50
Bureau of Mines, Albany, Oreg. Albany Metallurgy Research Center.
STAINLESS STEEL-GADOLINIUM ALLOYS,
by M. Copeland, W. Barstow, C. Armantrout, and H. Kato. Sep 64, 32p
Contract AT (11-1)-599
Distribution: No limitation.

Descriptors: (*Gadolinium alloys, Stainless steel), (*Stainless steel, Gadolinium alloys).

BMI-1737 **Field 11F, 18J**
CFSTI Prices: HC$1.25 MF$0.50
Battelle Memorial Inst., Columbus, Ohio.
IN-PILE STUDIES OF EXPERIMENTAL PYROLYTICCARBON-COATED UC2 AND UO2 FUEL PARTICLES,
by Robert L. Ritzman, Robert L. Martin,Neil E. Miller and Charles W. Townley. 28 Jul 65, 52p

Contract W-7405-eng-92
Distribution: No limitation.

Descriptors: (*Refractory coating, Reactor fuels), (*Reactor fuels, Refractory coatings), Carbon.

BNL-9264 **Field 11F, 18H**
CFSTI Prices: HC$1.60 MF$0.50
Brookhaven National Lab., Upton, N. Y.
THE MOBILITY OF DISLOCATIONS NEAR THE DUCTILE TO BRITTLE TRANSITION TEMPERATURE IN IRRADIATED IRON,
by S. B. McRickard. 1965, 16p CONF-650904-10
Contract AT (30-2)-GEN-16
Presented at Symposium on Radiation Effects, Asheville, N. C. Distribution: No limitation.

Descriptors: (*Iron, Radiation damage), (*Crystal lattice defects, Iron), Transition temperature, Brittleness).

CALT-221-11 **Field 11F, 20L**
CFSTI Prices: HC$3.00 MF$0.75
California Inst. of Tech., Pasadena. W. M. Keck Lab. of Engineering Materials.
A STUDY OF CsCl TYPE INTERMEDIATE PHASES INVOLVING RARE EARTH ELEMENTS.
Research and development rept no. 36,
by C. C. Chao. Jun 65, 87p
Contract AT (04-3)-221
Distribution: No limitation.

Descriptors: (*Cesium compounds, Chlorides), (*Rare earth elements, Alloys), Phase studies.

COO-1319-27 **Field 11F**
CFSTI Prices: HC$2.00 MF$0.50
Ohio State Univ. Research Foundation, Columbus.
A STUDY OF THE MECHANISM OF STRESS CORROSION CRACKING IN THE IRON-NICKEL-CHROMIUM ALLOY SYSTEM.
Quarterly rept. for 17 Mar-16 Jun 65,
by R. W. Staehle, F. H. Beck, M. G. Fontana, andJ. P. Hirth. 9 Jul 65, 43p
Contract AT (11-1)-1319
Distribution: No limitation.

Descriptors: (*Stress corrosion, Heat-resistant metals + alloys), (*Iron alloys, Nickel alloys), Chromium alloys, Stainless steel.

Identifiers: Incoloy (Alloys).

DP-976 **Field 11F, 18J**
CFSTI Prices: HC$3.00 MF$0.75
Du Pont De Nemours (E. I.) and Co., Aiken, S. C. Savannah River Lab.
METAL FUEL TUBE MANUFACTURE.
comp. by Stephen R. Nemeth. Jul 65, 87p
Contract AT (07-2)-1
Distribution: No limitation.

Descriptors: (*Reactor fuel rods, Manufacturing methods), (*Reactor fuel elements, Power reactors).

DRI-1092-210 **Field 11B**
CFSTI Prices: HC$1.00 MF$0.50
Denver Research Inst., Colo.
DETERMINATION OF PHASE EQUILIBRIA IN THE SYSTEM BeO - ThO2.
Quarterly rept. no. 3,
by Henry E. Otto. 15 Jun 65, 6p DRI-2229
Contract AT (11-1)-1092
Distribution: No limitation.

Descriptors: (*Oxides, Refractory materials), (*Refractory materials, Phase studies).

DRI-1092-211 **Field 11F**
CFSTI Prices: HC$1.00 MF$0.50
Denver Research Inst., Colo.
STUDIES OF THE EFFECT OF INTERSTITIAL ADDITION ON THE PHASE EQUILIBRIA OF THE NIOBIUM-RICH REGION OF THE NIOBIUM-TUNGSTENHAFNIUM AND NIOBIUM-TUNGSTEN-ZIRCONIUM ALLOY SYSTEMS.
Quarterly progress rept., no. 3,
by Albert S. Yamamoto. Jun 65, 12p DRI-2231
Contract AT (11-1)-1092
Distribution: No limitation.

Descriptors: (*Niobium alloys, Phase studies), (*Tungsten alloys, Phase studies), (*Hafnium alloys, Phase studies), (*Zirconium alloys, Phase studies).

DRI-1092-212 **Field 11F**
CFSTI Prices: HC$1.00 MF$0.50
Denver Research Inst., Colo.
PHASE EQUILIBRIA OF THE TANTALUM-RICH REGION OF THE TANTALUM - TUNGSTEN - HAFNIUM AND TANTALUM - TUNGSTEN - ZIRCONIUM SYSTEMS.
Quarterly progress rept. no. 3,
by Donald T. Klodt and Albert S. Yamamoto. Jun 65, 7p DRI-2232
Contract AT (11-1)-1092
Distribution: No limitation.

Descriptors: (*Tantalum alloys, Phase studies), (*Tungsten alloys, Phase studies), (*Zirconium alloys, Phase studies), (*Hafnium alloys, Phase studies).

EURAEC-1195 **Field 11F**
CFSTI Prices: HC$2.00 MF$0.50
Battelle Memorial Inst., Geneva (Switzerland).
THE RELATION BETWEEN TWINNING AND BRITTLE FRACTURE IN IRON AND IRON ALLOYS,
by E. Anderson and J. Spreadborough. 1965, 45p EUR-2034.f
Contract 095-62-12 RDS
Presented at "Journees Metallurgiques d'Automne" Paris France, 12-16 Oct 1964. Distribution: No limitation.

Descriptors: (*Iron, Twinning (Crystallography)), (*Iron alloys, Fracture (Mechanics)).

EURAEC-1349 **Field 11F, 18J**
CFSTI Prices: HC$2.00 MF$0.75
Centre National De Recherches Metallurgiques, Liege (Belgium).
STUDY OF EMBRITTLEMENT BY PLASTIC FATIGUE OF STEELS FOR REACTOR VESSELS.
Quarterly rept. no. 4, 1 Jan-31 Mar 65.
Apr 65, 47p EUR-2324
Contract 005-63-12-TEEB,
Proj. 288
Distribution: No limitation.

Descriptors: (*Steel, Embrittlement), (*Reactor materials, Fatigue (Mechanics)).

EURAEC-1351 **Field 11F, 13H**
CFSTI Prices: HC$2.00 MF$0.50
Soudometal, S. A., Brussels (Belgium).
STAINLESS STEEL CLADDING OF VERY THICK STEELS.
Quarterly rept. no. 3, 1 Jan-31 Mar 65.
29 Apr 65, 34p EUR-2326
Contract 008-63-12 TEEB (RD)
Distribution: No limitation.

Descriptors: (*Steel, Cladding), (*Cladding, Stainless steel).

EURAEC-1407 **Field 11F, 13H**
CFSTI Prices: HC$2.00 MF$0.50
Institut de Recherches de la Siderurgie, St.-GermaineEn-Laye (France).
STUDY OF THE BASE METAL INTENDED FOR RESEARCH ON THE BRITTLE FRACTURE OF LARGE WELDED ASSEMBLIES.
Special rept. no. 7, 1 May 64-1 May 65.
May 65, 26p EUR-2368
Contract 031-64-5 TEEF (RD)
Distribution: No limitation.

Descriptors: (*Fracture (Mechanics), Welds), (*Welds, Brittleness).

EURAEC-1424 **Field 11F**
CFSTI Prices: HC$1.00 MF$0.50
Virginia Polytechnic Inst., Blacksburg. Dept. of Metals and Ceramic Engineering.
THE RELATIONSHIP OF NITROGEN CONTENT OF AUSTENITIC STAINLESS STEELS TO STRESS CORROSION.
Quarterly rept. no. 4,
by B. N. Ferry. Jun 65, 16p Rept. no. 438-4
Contract AT (40-1)-3208
Distribution: No limitation.

Descriptors: (*Stainless steel, Stress corrosion), (*Stress corrosion, Stainless steel).

EURAEC-618 **Field 11F**
CFSTI Prices: HC$4.60 MF$1.58
Compagnie Pechiney, Paris.
RESULTS OF WORK CARRIED OUT FROM 1 JANUARY TO 31 MARCH, 1963 ON ZR ALLOYS.
Quarterly rept. no. 4.
30 Apr 63, 46p
Contract 067-62-4 RDF
Distribution: No limitation.

Descriptors: (*Zirconium alloys, Mechanical properties), (*Hardness, Zirconium alloys).

GEMP-49A **Field 11F, 18J**
CFSTI Prices: HC$3.00 MF$0.75
General Electric Co., Cincinnati, Ohio. Nuclear Materials and Propulsion Operation.
HIGH-TEMPERATURE MATERIALS PROGRAM.
Progress rept. no. 49, pt. A.
28 Jul 65, 80p
Contract AT (40-1)-2847
Distribution: No limitation.

Descriptors: (*Heat-resistant materials, Reactor materials), (*Heat-resistant metals + alloys, Reactor materials).

GEMP-50A **Field 11F, 11B, 18J, 7D**
CFSTI Prices: HC$3.00 MF$0.75
General Electric Co., Cincinnati, Ohio. Nuclear Materials and Propulsion Operation.

HIGH-TEMPERATURE MATERIALS PROGRAM.
Progress rept. no. 50, pt. A.
20 Aug 65, 81p
Contract AT (40-1)-2847
Distribution: No limitation.

Descriptors: (*Heat-resistant materials, Reactor materials), (*Heat-resistant metals + alloys, Reactor materials), (*Reactor fuels, Ceramics).

HW-64483 **Field 11F**
CFSTI Prices: HC$1.00 MF$0.50
Hanford Atomic Products Operation, Richland, Wash.
A CHEMICAL COMPOSITION AND PROCESS FOR REMOVING OXIDE AND SCALE FROM ALUMINUM METALS AND ALUMINUM ALLOYS,
by R. B. Richman and A. P. Larrick. 28 Mar 60, 5p
Contract AT (45-1)-1350
Distribution: No limitation.

Descriptors: (*Aluminum, Deoxidation (Metallurgy)), (*Aluminum alloys, Deoxidation (Metallurgy)).

IITRI-578P27-10 **Field 11F, 18J**
CFSTI Prices: HC$2.00 MF$0.50
IIT Research Inst., Chicago, Ill. Technology Center.
YIELD PHENOMENA AND FRACTURE OF HYDRIDED ZIRCONIUM.
Quarterly rept. for 1 Apr-30 Jun 65.
6 Aug 65, 33p EURAEC-1456, IITRI-B6035-10
Contract AT (11-1)-578
Distribution: No limitation.

Descriptors: (*Zirconium, Hydrogen embrittlement), (*Fracture (Mechanics), Zirconium).

LA-3340-MS **Field 11I, 13H**
CFSTI Prices: HC$1.00 MF$0.50
Los Alamos Scientific Lab., Univ. of California, N. Mex.
FORMING OF TEFLON SHEET BY POWDER ROLLING,
by H. Sheinberg. 29 Nov 64, 9p
Contract W-7405-eng-36
Distribution: No limitation.

Descriptors: (*Halocarbon plastics, Sheets), (*Material forming, Halocarbon plastics), Powders.

N65-17527 **Field 11G, 11F**
CFSTI Prices: HC$1.00 MF$0.50
Battelle Memorial Inst., Columbus, Ohio.
DEVELOPMENT OF IMPROVED THERMOELECTRIC MATERIALS FOR SPACECRAFT APPLICATIONS.
Quarterly progress rept. no. 1, 29 Jun-1 Oct 64,
by B. G. Koehl, E. H. Lougher, L. K. Matson, R. Simon and E. P. Stambaugh. 21 Oct 64, 25p
Contract NAS811452
NASA CR-60849
Distribution: No limitation.

Descriptors: (*Thermoelectricity, Materials), (*Alloys, Thermoelectricity).

N65-17528 **Field 11F**
CFSTI Prices: HC$2.00 MF$0.50
Battelle Memorial Inst., Columbus, Ohio.
INVESTIGATION OF MECHANICAL PROPERTIES OF CHROMIUM, CHROMIUM-RHENIUM, AND DERIVED ALLOYS.
Quarterly progress rept. no. 18, 1 Jun-30 Sep 64,
by A. Gilbert. 1 Oct 64, 27p
Contract NASW101
NASA CR-60818
Distribution: No limitation.

Descriptors: (*Chromium, Mechanical properties), (*Chromium alloys, Mechanical properties), Rhenium alloys.

N65-21357 **Field 11I, 7E**
CFSTI Prices: HC$2.00 MF$0.50
Stanford Research Inst., Menlo Park, Calif.
VACUUM ULTRAVIOLET IRRADIATION OF POLYBUTADIENE.
Final rept.,
by Morton A. Golub. 15 Feb 65, 33p
Contract NASr49 20,
Proj. PRU5127
NASA CR-57875
Distribution: No limitation.

Descriptors: (*Polyethylene plastics, Ultraviolet radiation), (*Butadienes, Radiation chemistry).

Identifiers: Polybutadienes.

N65-22125 **Field 11I, 20M**
CFSTI Prices: HC$4.00 MF$1.00
Lockheed Missiles and Space Co., Sunnyvale, Calif.
THERMAL CONDUCTANCE OF POLYMER CHARS.
Technical rept. for 28 Aug 64-28 Feb 65,
by G. R. Cunnington, W. Bradshaw, and F. J. Smith. 13 Mar 65, 140p Rept. no. M-52-65-2
Contracts JPL-950868, NAS7 100
NASA CR-62350
Distribution: No limitation.

Descriptors: (*Polymers, Thermal conductivity), (*Combustion products, Thermal conductivity), (*Heat shields, Thermal conductivity).

N65-22166 **Field 11H**
CFSTI Prices: HC$3.00 MF$0.50
SKF Industries, Inc., King of Prussia, Pa. Engineering and Research Center.
BEARING LUBRICANT ENDURANCE CHARACTERISTICS AT HIGH SPEEDS AND HIGH TEMPERATURES.
Progress rept. no. 10, 1 Jan-31 Mar 65,
by C. J. Wachendorfer. 31 Mar 65, 58p Rept. no. AL-65T031
Contract NASw492,
Proj. IX-1
NASA CR-62341
Distribution: No limitation.

Descriptors: (*Lubricants, Wear resistance).

N65-22176 **Field 11I, 9A**
CFSTI Prices: HC$2.00 MF$0.50
Hughes Aircraft Co., Culver City, Calif. Aerospace Group.
DEVELOPMENT OF IMPROVED HEAT STERILIZABLE POTTING COMPOUNDS.
Quarterly rept. no. 3, 1 Jan-31 Mar 64,
by Robert B. Feuchtbaum, Myra T. Willard, and Abraham L. Landis. 31 Mar 64, 50p Rept. no. P64-43
Contract NAS8 5499
NASA CR-56443
Distribution: No limitation.

Descriptors: (*Heat-resistant plastics, Encapsulation), (*Encapsulation, Heat-resistant plastics).

Identifiers: Potting compounds.

N65-24570 **Field 11F**
CFSTI Prices: HC$1.00 MF$0.50
Hydronautics, Inc., Laurel, Md.
CAVITATION DAMAGE IN LIQUID METALS.
Technical progress rept. for 1 Jan-31 Mar 65,
by A. Thiruvengadam, H. S. Preiser, and S. L. Rudy. 28 Apr 65, 19p TPR-467-2
Contract NAS3 4172
NASA CR-54391
Distribution: No limitation.

Descriptors: (*Liquid metals, Cavitation), (*Cavitation, Liquid metals).

N65-24655 **Field 11I, 13M**
CFSTI Prices: HC$2.00 MF$0.50
Whirlpool Corp., St. Joseph, Mich.
DEVELOPMENT OF FLEXIBLE FOAMED FILLED STRUCTURES.
Final rept.,
by Arthur E. Benford. 8 Dec 64, 41p
Contract NAS9 2031
NASA CR-65013
Distribution: No limitation.

Descriptors: (*Flexible structures, Foams), (*Expanded plastics, Inflatable structures).

N65-24989 **Field 11A**
CFSTI Prices: HC$2.00 MF$0.50
National Aeronautics and Space Administration, Huntsville, Ala. George C. Marshall Space Flight Center.
STATUS REPORT ON LIQUID OXYGEN SEAL INVESTIGATION,
by James E. Curry. 16 Dec 64, 36p NASA TMX-53183
Distribution: No limitation.

Descriptors: (*Seals, Oxygen), (*Oxygen, Liquefied gases).

N65-24990 **Field 11I**
CFSTI Prices: HC$2.00 MF$0.50
National Aeronautics and Space Administration, Langley Station, Va. Langley Research Center.
EFFECT OF COMPOSITION AND DENSITY ON THE ABLATIVE PERFORMANCE OF PHENOLIC-NYLON,
by Robert T. Swann, William D. Brewer, and Ronald L. Clark. 28 May 65, 28p NASA-TMX-56436
Paper presented at National Meeting of the Society of Aerospace Materials and Process Engineers, San Francisco, Calif., May 25-28 1965. Distribution: No limitation.

Descriptors: (*Plastics, Ablation), (*Ablation, Plastics).

N65-25346 **Field 11D**
CFSTI Prices: HC$2.00 MF$0.50
National Aeronautics and Space Administration, Huntsville, Ala. George C. Marshall Space Flight Center.
ACOUSTIC TECHNIQUES FOR THE NONDESTRUCTIVE EVALUATION OF ADHESIVELY BONDED COMPOSITE MATERIALS.
Technical memo.,
by W. N. Clotfelter. 17 Mar 65, 47p NASA-TM-X-53219
Distribution: No limitation.

Descriptors: (*Composite materials, Nondestructive testing), (*Bonding, Adhesion).

N65-27371 **Field 11F**
CFSTI Prices: HC$1.00 MF$0.50
Battelle Memorial Inst., Columbus, Ohio.
ENGINEERING PROPERTIES OF POTASSIUM AND CEISUM.
Quarterly rept. no. 12, 1 Jul-30 Sep 63,
by Alexis W. Lemmon, Jr. 30 Oct 63, 12p
Contract NAS5 584
NASA CR-63582
See also N65-27384. Distribution: No limitation.

Descriptors: (*Liquid metals, Alkali metals), (*Potassium, Physical properties), (*Cesium, Physical properties).

N65-27372 **Field 11F**
CFSTI Prices: HC$1.00 MF$0.50
Battelle Memorial Inst., Columbus, Ohio.
ENGINEERING PROPERTIES OF POTASSIUM AND CEISUM.
Quarterly rept. no. 13, 1 Oct-31 Dec 63,
by Alexis W. Lemmon, Jr. 30 Jan 64, 16p
Contract NAS5 584
NASA CR-63589
See also N65-27371. Distribution: No limitation.

Descriptors: (*Liquid metals, Alkali metals), (*Potassium, Physical properties), (*Ceisum, Physical properties).

N65-27384 **Field 11F**
CFSTI Prices: HC$1.00 MF$0.50
Battelle Memorial Inst., Columbus, Ohio.
ENGINEERING PROPERTIES OF POTASSIUM.
Quarterly progress rept. no. 10, 1 Jan-31 Mar 63,
by Alexis W. Lemmon, Jr. 30 Apr 63, 17p
Contract NAS5 584
NASA CR-63581
Distribution: No limitation.

Descriptors: (*Liquid metals, Potassium), (*Potassium, Physical properties).

N65-27644 **Field 11F**
CFSTI Prices: HC$3.00 MF$0.75
Case Inst of Tech., Cleveland, Ohio. Dept. of Metallurgy.
MODIFIED EUTECTIC ALLOYS FOR HIGH TEMPERATURE SERVICE.
Interim Rept. 1 May 64-1 May 65,
by R. L. Ashbrook and J. F. Wallace. 1965, 95p
Grant NsG639
NASA CR 63473
Distribution: No limitation.

Descriptors: (*Heat-resistant metals + alloys, Eutectics), (*Eutectics, Heat-resistant metals + alloys).

N65-28201 **Field 11C, 11F, 1C**
CFSTI Prices: HC$2.00 MF$0.50
Southern Research Inst., Birmingham, Ala.
EFFECT OF PROTECTIVE COATINGS ON THE STRESS-CORROSION PROPERTIES OF SUPERSONICTRANSPORT SKIN MATERIALS.
Quarterly status rept. no. 10 1 Mar-31 May 63,
by J. O. Hôneycutt and A. C. Willhelm. 15 Jun 65, 27p
Contract NASr-117
NASA CR-63784
Distribution: No limitation.

Descriptors: (*Airplane panels, Stress corrosion), (*Coatings, Corrosion inhibition).

N65-28628 **Field 11I, 20F**
CFSTI Prices: HC$1.00 MF$0.50
National Aeronautics and Space Administration, Cleveland, Ohio. Lewis Research Center.
EFFECT OF ULTRAVIOLET IRRADIATION ON SELECTED PLASTIC FILMS IN VACUUM,
by Evelyn Anagnostou. Jul 65, 14p NASA-TM-X-1124
Distribution: No limitation.

Descriptors: (*Plastics, Films), (*Ultraviolet radiation, Plastics).

N65-29821 **Field 11F**
CFSTI Prices: HC$3.00 MF$0.50
Michigan Univ., Ann Arbor.
THE MECHANICAL PROPERTIES OF INCONEL 718 SHEET ALLOY AT 800, 1000, and 1200F,
by T. M. Cullen and J. W. Freeman. Jul 65, 47p
Grant NsG124 61
NASA CR-268
Distribution: No limitation.

Descriptors: (*Nickel alloys, Mechanical properties), (*Chromium alloys, Mechanical properties), (*Iron alloys, Mechanical properties).

Identifiers: Inconel (Alloys).

N65-30186 **Field 11I**
CFSTI Prices: HC$2.00 MF$0.50
Sea-Space Systems, Inc., Torrance, Calif.
ULTRA THIN GAUGE POLYMERIC FILMS FOR SPACE APPLICATIONS,
by Dale W. Cox, Jr. Aug 65, 45p
Contract NAS7 274
NASA CR-274
Distribution: No limitation.

Descriptors: (*Polymers, Films), (*Films, Polymers).

N65-31572 **Field 11A**
CFSTI Prices: HC$2.00 MF$0.50
Tennessee Univ., Knoxville.
ANALYSIS OF THE VISCO SEAL. PART I. THE CONCENTRIC LAMINAR CASE,
by William K. Stair. Aug 65, 29p
Grant NsG587
NASA CR-285
Distribution: No limitation.

Descriptors: (*Seals (Stoppers), Performance (Engineering).

Identifiers: Visco seals.

NAA-SR-MEMO-11149 **Field 11F, 18J, 18N**
CFSTI Prices: HC$1.00 MF$0.50
Atomics International, Canoga Park, Calif.
PROPERTIES OF CLADDING MATERIALS FOR SNAP HYDRIDE REACTORS,
by G. F. Burdi. 22 Mar 65, 23p
Contract AT (11-1)-GEN-8
Distribution: No limitation.

Descriptors: (*Cladding, Reactor materials), (*Heatresistant metals ; alloys, Reactor materials).

ORNL-TM-1144 **Field 11F, 18J**
CFSTI Prices: HC$2.00 MF$0.50
Oak Ridge National Lab., Tenn.
PROPERTIES OF THORIUM, ITS ALLOYS, AND ITS COMPOUNDS,
by Sigfred Peterson, R. E. Adams, and D. A. Douglas, Jr. 1965, 29p
Contract W-7405-eng-26
Prepared for Presentation at IAEA Panel on "Utilization of Thorium in Power Reactors," Vienna, Austria, 14-18 Jun 1965. Distribution: No limitation.

Descriptors: (*Thorium, Physical properties), (*Reactor fuels, Thorium).

ORNL-TM-1179 **Field 11F**
CFSTI Prices: HC$1.00 MF$0.50
Oak Ridge National Lab., Tenn.
PROCUREMENT AND QUALITY EVALUATION OF Nb-1 PERCENT Zr STOCK FOR BOILING ALKALI METAL CORROSION STUDIES,
by T. K. Roche. Aug 65, 25p
Contract W-7405-eng-26
Distribution: No limitation.

Descriptors: (*Niobium alloys, Zirconium alloys), (*Corrosive liquids, Alkali metals).

ORNL-3740 **Field 11F, 18J**
CFSTI Prices: HC$3.00 MF$0.75
Oak Ridge National Lab., Tenn.
TIME STUDY OF FUEL ROD FABRICATION IN THE KILOROD FACILITY,
by J. E. Van Cleve, Jr., J. J. Varagona and A. L. Lotts. Oct 65, 66p
Contract W-7405-eng-26
Distribution: No limitation.

Descriptors: (*Time studies, Reactor fuel processing), (*Reactor fuel rods, Time studies).

ORNL-3819 **Field 11F, 18J**
CFSTI Prices: HC$2.00 MF$0.50
Oak Ridge National Lab., Tenn.
MOTION OF SPHERES IN SMOOTH ROTATING DRUMS AND APPLICATIONS TO THE COATING OF NUCLEAR FUEL PARTICLES,
by R. L. Pilloton and H. J. Flamm. Aug 65, 47p
Contract W-7405-eng-26
Distribution: No limitation.

Descriptors: (*Reactor fuel cladding, Reactor fuel processing), (*Reactor fuel processing, Reactor fuel cladding), Spheres, Thorium.

POR-1826 **Field 11G**
CFSTI Prices: HC$1.00 MF$0.50
Army Engineer Waterways Experiment Station, Vicksburg, Miss.
DESIGN, TESTING, AND FIELD PUMPING OF GROUT MIXTURES.
Final rept.,
by George V. Marler. Jul 62, 16p
Rept. on Proj. DANNY BOY, Nevada Test Site, 5 Mar 1962. Distribution: No limitation.

Descriptors: (*Grout, Performance (Engineering)).

Identifiers: DANNY BOY project.

RAI-3333-1 **Field 11I, 7E**
CFSTI Prices: HC$3.00 MF$0.75
Radiation Applications, Inc., Long Island City, N. Y.
UPGRADING OF BY-PRODUCT POLYPROPYLENE BY RADIATION TECHNIQUES.
Final summary rept. for 1 Feb 64-31 Jan 65,
by Bruce S. Bernstein, Joseph Lee, and Gyula Orban. 15 Mar 65, 65p
Contract AT (30-1)-3333
Distribution: No limitation.

Descriptors: (*Polyethylene plastics, Radiation chemistry).

Identifiers: Polypropylenes.

SC-TM-64-995 **Field 11C**
CFSTI Prices: HC$1.00 MF$0.50
Sandia Corp., Albuquerque, N. Mex.
SUPERIOR ORGANIC COATINGS.
Apr 65, 14p
Contract AT (29-1)-789
Distribution: No limitation.

Descriptors: (*Organic coatings, Effectiveness).

UCRL-11816 Rev. **Field 11D, 7D, 13H**
CFSTI Prices: HC$2.00 MF$0.50
Lawrence Radiation Lab., Univ. of California, Berkeley.
PHYSICAL CHEMISTRY OF GLASS-METAL INTERFACES,
by Joseph A. Pask and Marcus P. Borom. 5 Feb 65, 37p
Contract W-7405-eng-48
Distribution: No limitation.

Descriptors: (*Glass, Bonding), (*Metals, Bonding), (*Bonding, Physical chemistry).

UCRL-11889 **Field 11B, 7B, 7D, 11F, +**
CFSTI Prices: HC$5.00 MF$1.00
Lawrence Radiation Lab., Univ. of California, Berkeley.
INORGANIC MATERIALS RESEARCH DIVISION ANNUAL REPORT, 1964.
Feb 65, 171p
Contract W-7405-eng-48
Distribution: No limitation.

Descriptors: (*Materials, Scientific research), (*Reports, Materials).

UCRL-11957 **Field 11B, 7D**
CFSTI Prices: HC$1.00 MF$0.50
Lawrence Radiation Lab., Univ. of California, Berkeley.
MEASUREMENTS OF THE THERMODYNAMIC STABILITIES OF THE NIOBIUM AND TANTALUM OXIDES USING A HIGH-TEMPERATURE GALVANIC CELL,
by Wayne L. Worrell. Jun 65, 22p CONF-650704-5, SM-66/66
Contract W-7405-eng-48
Presented at IAEA Symposium on Thermodynamics, Vienna. Distribution: No limitation.

Descriptors: (*Refractory materials, Thermodynamics), (*Niobium compounds, Oxides), (*Tantalum compounds, Oxides).

UCRL-11984 **Field 11F, 7E, 7B**
CFSTI Prices: HC$4.00 MF$0.75
Lawrence Radiation Lab., Univ. of California, Berkeley.
MAGNETIC PROPERTIES OF CURIUM METAL AND ITS COMPOUNDS.
Doctoral thesis,
by Sayed A. Marei. 18 May 65, 102p
Contract W-7405-eng-48
Distribution: No limitation.

Descriptors: (*Curium, Magnetic properties), (*Curium compounds, Magnetic properties).

UCRL-12487 **Field 11F**
CFSTI Prices: HC$2.00 MF$0.50
Lawrence Radiation Lab., Univ. of California, Livermore.
ELECTRON BEAM DISTILLATION FURNACE FOR REACTIVE METALS: DESIGN CONSIDERATIONS AND OPERATING EXPERIENCE,
by R. F. Bushah and R. S. Juntz. 13 May 65, 30p CONF-650617-2
Contract W-7405-eng-48
Prepared for Presentation at Vacuum Metallurgy Conference, New York, 21-23 Jun 1965. Distribution: No limitation.

Descriptors: (*Furnaces, Metals), (*Metals, Distillation).

12. MATHEMATICAL SCIENCES

IS-T-14 **Field 12A**
CFSTI Prices: HC$2.00 MF$0.50
Ames Lab., Iowa State Univ. of Science and Tech.
TABLES OF ELLIPTIC INTEGRALS.
Master's thesis,
by William Joel Nellis. May 65, 46p
Contract W-7405-eng-82
Distribution: No limitation.

Descriptors: (*Integrals, Tables).

LA-DC-6372 **Field 12B, 9B**
CFSTI Prices: HC$1.00 MF$0.50
Los Alamos Scientific Lab., Univ. of California, N. Mex.
A PARTIAL ANALYSIS OF GO,
by Edward O. Thorp and William E. Walden. 1962, 18p
Contract W-7405-eng-36, Grant NSF-G-25058
Distribution: No limitation.

Descriptors: (*Game theory, Computers), (*Computers, Game theory).

LA-DC-6526 **Field 12A**
CFSTI Prices: HC$4.00 MF$0.75
Los Alamos Scientific Lab., Univ. of California, N. Mex.
THE THEORY AND APPLICATION OF THE PADE APPROXIMANT METHOD,
by George A. Baker, Jr. 1964, 112p
Contract W-7405-eng-26
Distribution: No limitation.

Descriptors: (*Approximation (Mathematics), Theory).

Identifiers: Pade approximation.

N65-16827 **Field 12A**
CFSTI Prices: HC$1.00 MF$0.50
Emory Univ., Atlanta, Ga.
DIFFERENCE EQUATIONS WITH VARYING DIFFERENCE INTERVALS, AND DIFFERENCE EQUATIONS AND DIFFERENTIAL EQUATIONS WITH ALMOST PERIODIC COEFFICIENTS.
Status rept., 1 Dec 63-1 Jun 64,
by F. Tomlinson. May 64, 18p
Grant NSG-545
NASA CR-56355
Distribution: No limitation.

Descriptors: (*Difference equations, Theory), (*Differential equations, Theory).

N65-29963 **Field 12A**
CFSTI Prices: HC$2.00 MF$0.50
National Aeronautics and Space Administration, Moffett Field, Calif. Ames Research Center.
SELF-STARTING MULTISTEP METHODS FOR THE NUMERICAL INTEGRATION OF ORDINARY DIFFERENTIAL EQUATIONS,
by William A. Mersman. Jul 65, 27p NASA-TN-D-2936
Distribution: No limitation.

Descriptors: (*Differential equations, Integration).

ORNL-3646 **Field 12A**
CFSTI Prices: HC$3.00 MF$0.75
Oak Ridge National Lab., Tenn.
RELATED TWO POINT BOUNDARY VALUE PROBLEMS AND ASSOCIATED HARMONIC MATRICES.
Doctoral thesis,
by Anton Zettl. Sep 65, 64p
Contract W-7405-eng-26
Submitted to the Univ. of Tennessee. Distribution: No limitation.

Descriptors: (*Boundary value problems, Harmonic analysis), (*Harmonic analysis, Boundary value problems).

SC-RR-65-306 **Field 12A**
CFSTI Prices: HC$1.00 MF$0.50
Sandia Corp., Albuquerque, N. Mex.
SHORT CUT METHOD FOR DIMENSIONAL ANALYSIS,
by A. V. Houghton, III and David G. Kitzinger. Sep 65, 10p
Contract AT (29-1)-789
Distribution: No limitation.

Descriptors: (*Numerical analysis, Matrix algebra).

Identifiers: Dimensional analysis.

WAPD-T-1712 **Field 12A**
CFSTI Prices: HC$1.00 MF$0.50
Bettis Atomic Power Lab., Pittsburgh, Pa.
ON ESTIMATION OF THE SUCCESSIVE OVER RELAXATION FACTOR,
by A. K. Rigler. Jun 64, 10p
Contract AT-11-1-GEN-14
Distribution: No limitation.

Descriptors: (*Difference equations, Approximation (Mathematics)).

13. MECHANICAL, INDUSTRIAL, CIVIL, AND MARINE ENGINEERING

AD-437 233 **Field 13J**
CFSTI Price: HC$8.00
David Taylor Model Basin, Washington, D. C.
BATTLE DAMAGE TO SURFACE SHIPS DURING WORLD WAR II (Boevye Povrezhdenua Nadovdnykh Korablei),
by I. M. Korotkin. Feb 64, 500p Trans-310
TT 65-64092
Distribution: No limitation.

Descriptors: (*Naval vessels (Combatant), Damage), Airburst, Nuclear explosions, Effectiveness, Damage control, Aircraft carriers, Battleships, Cruisers, Nuclear explosion damage, Survival, Torpedoes, Mines (Ordnance), Bombs, Aircraft.

Data on battle damage to foreign surface ships of the basic classes during World War II are systematized and generalized in this book. One chapter is devoted to a description of the effects of aerial and underwater atomic explosions on ships (based on tests at Rikini Atoll). Basic conclusions are drawn on the effectiveness of attack by different types of weapons on the structural integrity of warships and the significance of damage control measures. The appendixes list wellknown cases of losses of foreign aircraft carriers, battleships, cruisers. (Author)

AD-459 652 **Field 13H, 11F, 11D**
CFSTI Price: HC$1.00
Watervliet Arsenal, N. Y. Benet Labs.
THE ELECTRODEPOSITION OF SINGLE CRYSTAL GOLD-ALUMINUM OXIDE ALLOYS.
Technical rept.,
by K. A. Hill and F. K. Sautter. Mar 65, 18p
WVT-6510
Proj. DA-1-A-0-13001-A-039-26
Distribution: No limitation.

Descriptors: (*Gold alloys, Single crystals), (*Single crystals, Electrodeposition), (*Electrodeposition, Films), Gold, Ceramic materials, Aluminum compounds, Oxides, Composite materials, Silver, Substrates, Electron microscopy, Metal films, Crystal growth, X-ray diffraction analysis, Dispersion hardening, Cermets.

Single crystals of gold and gold-aluminum oxide were obtained by electrodeposition on a single crystal silver substrate according to the method developed by KuhlmannWilsdorf. An analysis of the factors determining the growth of the single crystals from the electrolyte indicates that the temperature and rate of growth of the deposit are the controlling factors rather than the purity or salt content of the bath itself. It was found that the films containing Al2O3 are much more stable to recrystallization than those of pure gold. Techniques for the preparation of the transmission specimens involving minimum coldworking were developed and the films examined in the electron microscope. (Author)

EURAEC-1297 **Field 13H**
CFSTI Prices: HC$2.00 MF$0.50
Soudometal, S. A., Brussels (Belgium).
WELDING OF VERY THICK STEELS.
Quarterly rept. no. 13, for 1 Oct-31 Dec 64.
31 Dec 64, 28p EUR-2092
Contract 042-61-9 RDB
Distribution: No limitation.

Descriptors: (*Welding, Steel), (*Steel, Welding).

EURAEC-1341 **Field 13H**
CFSTI Prices: HC$2.00 MF$0.50
Roentgen Technische Dienst N. V., Rotterdam (Netherlands).
NON-DESTRUCTIVE WELDING.
Quarterly rept. no. 12.
31 Mar 65, 26p EUR-2317
Contract 045-61-5 RDH
Distribution: No limitation.

Descriptors: (*Non-destructive testing, Welds), (*Welds, Non-destructive testing).

EURAEC-1393 **Field 13H**
CFSTI Prices: HC$2.00 MF$0.50
Roentgen Technische Dienst N. Y., Rotterdam (Netherlands).
NON-DESTRUCTIVE WELDING TESTS.
Quarterly rept. no. 15, 1 Jan - 31 Mar 65.
31 May 65, 29p EUR-2353
Contract 045-61-5
Distribution: No limitation.

Descriptors: (*Non-destructive testing, Welds), (*Welds, Non-destructive testing).

N65-16985 **Field 13H**
CFSTI Prices: HC$2.00 MF$0.50
Pressure Technology Corp. of America, Woodbridge, N. J.
AN INVESTIGATION OF FLUID EXTRUSION OF METALS.
Quarterly rept. no. 1, 2 Jul 63-30 Sep 63,
by A. Bobrowsky. 30 Sep 63, 37p
NASW742
NASA CR-52038
Distribution: No limitation.

Descriptors: (*Extrusion, Metals), (*Metals, Extrusion).

N65-18947 **Field 13A**
CFSTI Prices: HC$1.00 MF$0.50
Electro-Optical Systems Inc., Pasadena, Calif.
CONDENSER HEAT REJECTION SYSTEMS.
Monthly progress rept. for 28 Jan-24 Feb 62,
by Lance Hays. 10 Mar 62, 3p Rept. no. OES-1588-ML-16
Contract NAS7 11
NASA CR-57175
Distribution: No limitation.

Descriptors: (*Condensers (Liquefiers), Heat exchangers), (*Heat exchangers, Condensers (Liquefiers)).

N65-19901 **Field 13H, 11C**
CFSTI Prices: HC$1.00 MF$0.50
National Aeronautics and Space Administration, Huntsville, Ala. George C. Marshall Space Flight Center.
EVALUATION OF STRAIN INDICATOR COATINGS FOR APPLICATION IN DETECTING VOIDS IN BONDED HONEYCOMB SANDWICH STRUCTURES,
by Paul H. Schuerer and William G. Simpson. 21 Sep 64, 24p Rept. no. TMX-53135.1
Distribution: No limitation.

Descriptors: (*Sandwich panels, Defects (Materials)), (*Test methods, Coatings).

N65-21765 **Field 13K**
CFSTI Prices: HC$3.00 MF$0.50
Pratt and Whitney Aircraft, West Palm Beach, Fla. Florida Research and Development Center.
INVESTIGATION OF PRESSURE PREDICTION METHODS FOR RADIAL FLOW IMPELLERS.
Final rept., phase 2,
by W. E. Young and H. F. Due. 8 Mar 65, 57p
Rept. no. PWA-FR-1276
NASA CR-62246
Distribution: No limitation.

Descriptors: (*Impellers, Turbopumps).

N65-25248 **Field 13K**
CFSTI Prices: HC$3.00 MF$0.75
Pratt and Whitney Aircraft, Middletown, Conn. Div. UAC CANEL.
INVESTIGATION OF CAVITATION DAMAGE OF A MECHANICAL PUMP IMPELLER IN HIGH TEMPERATURE POTASSIUM.
Quarterly progress rept. no. 1, 7 Dec 64-28 Feb 65,
by R. S. Kulp and J. V. Alteiri. Apr 65, 80p
Rept. no. P and WA-CNLM-6028
Contract NAS3 6468
NASA CR-54383
Distribution: No limitation.

Descriptors: (*Impellers, Cavitation), (*Pumps, Damage).

N65-27374 **Field 13I**
CFSTI Prices: HC$2.00 MF$0.50
Aerospace Research Associates, Inc., West Covina, Calif.
HIGH ENERGY SHOCK ABSORBERS AND STRUCTURAL OVERLOAD DEVICES.
Final rept. for Jul 64-May 65,
1965, 48p Rept. no. ARA-60
Contract NAS8 11687
NASA CR-63602
Distribution: No limitation.

Descriptors: (*Shock absorbers, Torque couplings).

N65-27391 **Field 13H**
CFSTI Prices: HC$3.00 MF$0.75
Boeing Co., Seattle, Wash. Aero-Space Div.
IDENTIFYING OPTIMUM PARAMETERS OF HOT EXTRUSTIONS.
Interim rept.,
by R. W. Rice and J. G. Hunt. 3 May 65, 96p
Contract NAS7 276
NASA CR-63598
Research conducted in cooperation with Nuclear Metals, Div. Textron, Inc., West Concord, Mass.
Distribution: No limitation.

Descriptors: (*Hot working, Extrustion), (*Extrusion, Hot working).

N65-27392 **Field 13I**
CFSTI Prices: HC$1.00 MF$0.50
National Aeronautics and Space Administration, Cleveland, Ohio. Lewis Research Center.
EFFECT OF SPEED, LOAD, AND TEMPERATURE ON MINIMUM-OIL-FLOW REQUIREMENTS OF 30- AND 75-MILLIMETER-BORE BALL BEARINGS,
by Zolton N. Nemeth and William J. Anderson. Jul 65, 15p NASA-TN-D-2908
Distribution: No limitation.

Descriptors: (*Ball bearings, Lubrication).

N65-28629 **Field 13K**
CFSTI Prices: HC$4.00 MF$0.75
Pratt and Whitney Aircraft, Middletown, Conn.
CAVITATION DAMAGE OF MECHANICAL PUMP IMPELLERS OPERATING IN LIQUID METAL SPACE POWER LOOPS,
by R. S. Kulp and J. V. Altieri. Jul 65, 116p
Contract NAS3 2541
NASA CR-165
Distribution: No limitation.

Descriptors: (*Impellers, Cavitation), (*Pumps, Damage).

N65-29953 **Field 13G**
CFSTI Prices: HC$2.00 MF$0.50
National Aeronautics and Space Administration, Langley Station, Va. Langley Research Center.
USE OF A SINGLE TURNING VANE TO ELIMINATE FLOW SEPARATION IN A SPACE-LIMITED 90 deg INTAKE ELBOW OF AN AXIAL-FLOW COMPRESSOR,
by S. Z. Pinckney. Aug 65, 28p NASA-TM-X-1110
Distribution: No limitation.

Descriptors: (*Axial-flow compressors, Guide vanes).

N65-33361 **Field 13H, 11F**
CFSTI Prices: HC$3.00 MF$0.50
Naval Weapons Lab., Dahigren, Va.
PLANE STRAIN FRACTURE TOUGHNESS OF 18 Ni (250) AND 18 Ni (200) MARAGING WELDED STEEL PLATE,
by H. E. Romine. Sep 65, 51p
NASA CR-302
Distribution: No limitation.

Descriptors: (*Maraging steels, Fracture (Mechanics)), (*Welds, Maraging steels).

NAA-SR-11414 **Field 13A, 20M**
CFSTI Prices: HC$1.00 MF$0.50
Atomics International, Canoga Park, Calif.
SRE HEAT TRANSFER SYSTEM DEMOLITION,
by J. D. Nicholson. 31 Aug 65, 25p
Contract AT (11-1)-GEN-8
Distribution: No limitation.

Descriptors: (*Reactor system components, Heat transfer), (*Heat transfer, Reactor system components).

Patent 3,213,163 **Field 13H**
FABRICATION OF SHAPES BY PNEUMATIC IMPACTION.
Patent assigned to AEC,
by Daniel W. Brite and Kenneth R. Sump. 19 Oct 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Cermets, Mechanical working), (*Mechanical working, Cermets), Reactor fuel elements, Presses (Machinery), Pneumatic systems, Tungsten, Molybdenum, Stainless steel, Molding, Dies, Vibration, Ceramic materials, Mandels.

The nuclear fuel element is of the grid type and is made from a cermet for use in a power reactor. The cermets are highly compacted mixtures of metals, such as tungsten, with oxides of uranium, plutonium, or other fissionable ceramics. The fuel element is shaped by pneumatic impaction in a cylindrical stainless steel can. A plurality of mandrels and posts are positioned in the can and the spaces between them are filled with the cermet.

Patent 3,214,999 **Field 13I**
HARMONIC DRIVE.
Patent assigned to Navy,
by Roger H. Lapp. 2 Nov 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Variable-speed drives, Reduction gears), Patents.

The harmonic drive has utility in optical tracking telescopes, radar antenna drives, aircraft control surface actuators, and high precision X-Y plotting equipment. Two harmonic drive units, each having its own input motor, are coupled together. One of the units has a fixed internal gear, while the other unit has a freely rotatable internal gear which functions as the output shaft of the harmonic drive unit. Both of the input motors constantly run during operation; but, by varying their relative speeds,

the output shaft can be made to rotate bidirectionally at varying speeds or to remain stationary.

Patent 3,215,970 **Field 13E**
SIDE PULLAWAY DISCONNECT APPARATUS.
Patent assigned to Air Force,
by Charles R. McCulloch. 2 Nov 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Disconnect fittings, Test vehicles), Patents, Rocket-propelled sleds, Hose couplings, Electric connectors, Operation.

The disconnect apparatus is useful on a rocket sled such as is used to conduct high velocity and high acceleration-deceleration tests of hardware relating to flight. The apparatus disengages one or more quickdisconnect devices from the moving sled transverse to the forward movement of the vehicle. One part of the device is attached to the sled and the other half to the apparatus.

Patent 3,217,308 **Field 13E**
SHAFT ANGLE TRANSDUCER.
Patent assigned to Navy,
by Richard F. Maxwell, Jr. 9 Nov 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Transducers, Feedback), (*Seromechanisms, Transducers), Shafts, Control systems, Velocity, Rotation.

The shaft angle transducer furnishes feedback for a closed-loop position servomechanism. A shaft angle transducer is provided which utilizes a flux modulation principle for its operation. The transducer furnishes a remote indication of shaft position.

Patent 3,217,727 **Field 13G**
PNEUMATIC RELAXATION OSCILLATOR.
Patent assigned to Army,
by Chris E. Spyropoulos. 16 Nov 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Relaxation oscillators, Pneumatic devices), (*Fluid amplifiers, Relaxation oscillators), Control systems, Jets, Pressure, Boundary layer.

The oscillator combines a boundary layer control fluid amplifier and a pressure differential relaxation control which consists of a fluid capacitor and a fluid resistance. The fluid amplifier has a receiving aperture system with two channels, a vent channel, and a load channel. The relaxation pressure differential control is placed adjacent the load channel in close proximity to the power jet orifice, where a pressure differential across the power jet can cause switching of the power jet. This relaxation pressure differential control operates to limit the rate of pressure increase on the load side of the power jet when the jet is in the load channel, thereby holding the power jet in the load channel for a predetermined time.

RFP-570 **Field 13I, 14B**
CFSTI Prices: HC$1.00 MF$0.50
Rocky Flats Div., Dow Chemical Co., Denver, Colo.
FEED RATE CHECKS ON NUMERICAL CONTROLLED MACHINES,
by C. E. Durbin. 25 Aug 65, 12p
Contract AT (29-1)-1106
Distribution: No limitation.

Descriptors: (*Machine Tools, Automation).

RFP-573 **Field 13I**
CFSTI Prices: HC$2.00 MF$0.50
Rocky Flats Div., Dow Chemical Co., Denver, Colo.
AN EXPERIMENTAL HYDROSTATIC JOURNAL BEARING,
by A. E. Rains. 27 Aug 65, 33p
Contract AT (29-1)-1106
Distribution: No limitation.

Descriptors: (*Journal bearings, Hydrostatics).

TID-3584 **Field 13B, 7B, 181, 18L, +**
CFSTI Prices: HC$2.00 MF$0.50
Oak Ridge National Lab., Tenn.
NUCLEAR ENERGY FOR WATER DESALTING. A BIBLIOGRAPHY,
comp. by Helen F. Kuhns and Henry D. Raleigh. Sep 65, 25p
Prepared in cooperation with Division of Technical Information Extension (AEC), Oak Ridge, Tenn. Distribution: No limitation.

Descriptors: (*Desalination, Nuclear power plants), (*Bibliographies, Desalination).

UCRL-13160 **Field 13M, 14B**
CFSTI Prices: HC$3.00 MF$0.75
Lawrence Radiation Lab., Univ. of California, Berkeley.
TENSION WIRE SUPPORT STRUCTURES. PART 3 OF 3. THE DESIGN AND STATIC TESTING OF THE FINAL ASSEMBLY.
Final rept.,
by J. Frisch and R. F. Steidel, Jr. May 65, 67p
Rept. no. MD-65-3
Contract W-7405-eng-48,
Proj. UCX-2317
Distribution: No limitation.

Descriptors: (*Supports, Wire).

14. METHODS AND EQUIPMENT

BNL-9241 **Field 14B**
CFSTI Prices: HC$1.00 MF$0.50
Brookhaven National Lab., Upton, N. Y.
HIGH CURRENT SWITCH WITH BUILT-IN LINEAR TIMER (IH-386 AND IH-398),
by J. P. Palmer and S. C. Goscinski. 20 May 65, 6p
Contract AT (30-2)-GEN-16
Distribution: No limitation.

Descriptors: (*Time switches, Electron tube heaters), (*Chemical reactions, Heating elements).

HW-80723 **Field 14B, 20K, 11F**
CFSTI Prices: HC$1.00 MF$0.50
Hanford Atomic Products Operation, Richland, Wash.
CREEP PENETRATION TESTING PROCEDURE,
by R. J. Evans. 3 Feb 64, 9p
Contract AT (45-1)-1350
Distribution: No limitation.

Descriptors: (*Creep, Test methods), (*Test methods, Creep).

LA-3344 **Field 14B, 13H**
CFSTI Prices: HC$1.00 MF$0.50
Los Alamos Scientific Lab., Univ. of California, N. Mex.
AN INERT ATMOSPHERE ENCLOSURE FOR THE PREPARATION OF SAMPLES PRIOR TO THE DETERMINATION OF OXYGEN,
by Maynard E. Smith, James M. Hansel andGlenn R. Waterbury. 20 May 65, 11p
Contract W-7405-eng-36
Distribution: No limitation.

Descriptors: (*Controlled atmospheres, Mointors), (*Oxygen, Controlled atmos-

N65-16488 **Field 14E, 4B, 22B**
CFSTI Prices: HC$2.00 MF$0.50
Stanford Research Inst., Menlo Park, Calif.
HIGH-DEFINITION PHOTOGRAPHY OF PROJECT ECHO 1 SATELLITE.
Final rept.,
by R. H. Weitbrecht. Jul 63, 48p
Contract NASr49 03,
Proj. SRI3890
NASA CR-53146
Distribution: No limitation.

Descriptors: (*Meteorological satellites, Photography).

Identifiers: Echo 1 satellite.

N65-17215 **Field 14B**
CFSTI Prices: HC$1.00 MF$0.50
Jet Propulsion Lab., Calif. Inst. of Tech., Pasadena.
A PNEUMATIC MODEL LAUNCHER FOR FREE-FLIGHT TESTING IN A CONVENTIONAL WIND TUNNEL,
Memorandum rept.,
by H. P. Holway, J. G. Herrera, and B. Dayman, Jr. 30 Jul 64, 21p JPL-TM-33-177
Contract NAS7 100
NASA CR-60755
Distribution: No limitation.

Descriptors: (*Launching, Free-flight models), (*Pneumatic devices, Launching).

N65-21722 **Field 14E, 22B**
CFSTI Prices: HC$1.00 MF$0.50
McGill Univ., Montreal (Quebec).
PHOTOGRAPHY OF THE EARTH FROM SPACE AND ITS NON-METEORLOGICAL APPLICATIONS,
by A. Morrison and J. Brien Bird. 1964, 20p
Contract NASr140
NASA CR-62202
Prepared in cooperation with Institute of Science and Tech., Univ. of Michigan, Ann Arbor. Distribution: No limitation.

Descriptors: (*Satellites (Artificial), Photography), Earth (Planet).

N65-27376 **Field 14B**
CFSTI Prices: HC$1.00 MF$0.50
RCA Service Co., Inc., Camden, N. J.
A LARGE ULTRA HIGH VACUUM ENVIRONMENTAL CHAMBER WITH LIQUID HELIUM COOLED WALLS.
by C. D. Elderkin and J. M. Bradford. 1965, 21p
Contract NAS1 1918c
NASA CR-63623
Prepared for presentation at Inst. of Environmental Sciences 1965 Technical Meeting and Equipment Exposition, 21-23 Apr 1965. Distribution: No limitation.

Descriptors: (*Space simulation chambers, Cooling), (*Vacuum apparatus, Controlled atmospheres).

N65-28916 **Field 14B, 14E**
CFSTI Prices: HC$1.00 MF$0.50
National Aeronautics and Space Administration, Langley Station, Va. Langley Research Center.
THEORY AND OPERATION OF A VARIABLE EXPOSURE PHOTOGRAPHIC PYROMETER OVER THE TEMPERATURE RANGE 1800 TO 3600F (1255 TO 2255K),
by Reginald J. Exton. Mar 65, 17p NASA-TN-D-2660
Distribution: No limitation.

Descriptors: (*Pyrometers, Photographic equipment).

N65-32647 **Field 14B**
CFSTI Prices: HC$2.00 MF$0.50
National Aeronautics and Space Administration, Cleveland, Ohio. Lewis Research Center.

ULTRASONIC TECHNIQUE FOR DETECTION AND MEASUREMENT OF FATIGUE CRACKS,
by Stanley J. Klima, Daniel J. Lesco, and John C. Freche. Sep 65, 24p
NASA TN-D-3007
Distribution: No limitation.

Descriptors: (*Ultrasonic radiation, Nondestructive testing), (*Defects (Materials), Fatigue (Mechanics)).

Patent 3,214,973 **Field 14B, 20D, 20A**
ACOUSTIC FLOW METER FOR MEASURING VERY SLOW FLUID FLOW.
Patent assigned to Navy,
by Robert A. Lester and John H. Thompson. 2 Nov 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Flowmeters, Acoustic equipment), Probes, Ocean currents, Tides, Circuits, Transducers, Reliability (Electronics), Phase meters, Patents.

The flow meter may be used in the measurement of tides, flows around models of boats, currents in the ocean and flows through a conduit. Circuitry is disclosed for measuring the time required for acoustic energy to travel between two probes in one direction and to subtract this time from the time required for acoustic energy to travel between the probes in the opposite direction. The difference in time is measured as a phase difference between the two acoustic waves, and this phase difference is proportional to the velocity of the fluid.

RFP-456 **Field 14B**
CFSTI Prices: HC$1.00 MF$0.50
Rocky Flats Div., Dow Chemical Co., Golden, Colo.
A MULTIPURPOSE GAS CELL,
by O. H. Willoughby, E. Vejvoda, and A. J. Johnson. 7 Apr 65, 2p
Contract AT (29-1)-1106
Distribution: No limitation.

Descriptors: (*Gases, Containers), (*Spectrum analyzers, Gases).

RFP-572 **Field 14B**
CFSTI Prices: HC$1.00 MF$0.50
Rocky Flats Div., Dow Chemical Co., Golden, Colo.
AN ELECTRIC DISCHARGE AS A TRAP FOR DIFFUSION PUMP VACUUM SYSTEMS,
by R. O. Adams. 1965, 12p
Contract AT (29-1)-1106
Distribution: No limitation.

Descriptors: (*Diffusion pumps, Electric discharges).

TEES-2671-4 **Field 14B**
CFSTI Prices: HC$7.75 MF$2.00
Texas A and M Univ., College Station. Activation Analysis Research Lab.
INVESTIGATIONS IN AUTOMATED ACTIVATION ANALYSIS,
by Richard E. Wainerdi, Manchery P. Menon, and Lloyd E. Fite. 1 Jan 65, 372p
Contract AT (40-1)-2671-1
Distribution: No limitation.

Descriptors: (*Radioactivation analysis, Automation).

17. NAVIGATION, COMMUNICATIONS, DETECTION, AND COUNTERMEASURES

AD-430 134 **Field 17I, 9C**
CFSTI Price: HC$7.00
Radio Corp. of America, Moorestown, N. J. Missile and Surface Radar Div.
LIGHTWEIGHT RADAR TECHNIQUE PROGRAM. PHASE 1 STUDY.
Final development rept. 28 Jun-28 Dec 63.
15 Jan 64, 355p
Contract NObsr-89481,
Proj. SF001-02-01,
Task 6769
Distribution: No limitation.

Descriptors: (*Search radar, Weight), Glass textiles, Aluminum, Design, Research program administration, Costs, Capacitors, Transformers, Coils, Integrated circuits, Plastics, Magnesium, Beryllium, Inflatable structures, Parabolic antennas, Isocyanate plastics, Radomes.

N65-17214 **Field 17B, 22A**
CFSTI Prices: HC$3.00 MF$0.75
Space-General Corp., El. Monte, Calif.
THEORETICAL AND EXPERIMENTAL PROCESSING OF LUNAR TELEVISION PICTURES.
Final rept.,
by C. S. Lorens, A. M. Boehmer, and J. Gallagher.
29 Nov 62, 87p SGC-203R-4
Contracts NAS7 100, JPL950249
NASA CR-60754
Distribution: No limitation.

Descriptors: (*Lunar probes, Television communication systems), (*Television communication systems, Lunar probes).

N65-30735 **Field 17I, 22D**
CFSTI Prices: HC$1.00 MF$0.50
National Aeronautics and Administration, Greenbelt, Md. Goddard Space Flight Center.
COVERAGE DIAGRAMS FRO X-Y AND ELEVATION OVER-AZIMUTH ANTENNA MOUNTS,
by Chesley H. Looney, Jr. and Donald J. Carlson.
Aug 65, 14p NASA-TN-D-2963
Distribution: No limitation.

Descriptors: (*Satellite tracking systems, Antenna radiation patterns), (*Antenna radiation patterns, Satellite tracking systems).

Patent 3,213,200 **Field 17B**
MULTIPLE-SERVICE COMMUNICATION SYSTEM.
Patent assigned to Air Force,
by Joseph H. Vogelman, Richard C. Benoit, Jr., John A. Thompson, Floyd Kozien and Frank Kozien. 19 Oct 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Data transmission systems, Multiple operation), (*Telephone communication systems, Multiple operation), (*Telegraph system, Multiple operation), Patents.

Telephone-telegraph switching facilities are provided whereby in a telephone-telegraph communication system, teletype and telephone equipment may be interchangeably connected and disconnected to the transmission media without the introduction of errors in the messages being transmitted.

Patent 3,213,409 **Field 17G, 17A**
CONDITION SELECTOR APPARATUS.
Patent assigned to Navy,
by Paul C. Bailey and George A. Gimber. 19 Oct 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Depth finding, Radio sono buoys), (*Depth indicators, Radio sono buoys), Hydrophones, Launching, Patents.

The operating depth selector is especially suitable for use with an air-launched sonobuoy and its associated magazine-type rapid succession launcher. The hydrophone cable payout can be easily selected from several predetermined lengths. Physical access to the inside of the sonobuoy is not necessary for the depth selection.

Patent 3,213,451 **Field 17I**
AIRBORNE CONTOUR-SENSING RADAR.
Patent assigned to Navy,
by Frederick C. Alpers. 19 Oct 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Target recognition, Radar), (*Radar equipment, Airborne), (*Identification systems, Radar equipment), Aerial reconnaissance, Patents.

The airborne contour sensing radar system combines height discrimination with reflectivity discrimination for the purpose of target identification. The system is basically a high-resolution, short-range, very narrow pulsed radar system. It includes a narrow beam antenna, a transmitter, a receiver, a duplexer, a clock oscillator, height and reflectivity discriminators and display devices and other components.

Patent 3,213,455 **Field 17I, 9E**
ANTENNA FEED WAVEGUIDE SYSTEM PROVIDING RAPID SWITCHING BETWEEN SCAN AND TRACKING MODES OF OPERATION.
Patent assigned to Army,
by Robert M. Goodman, Jr. 19 Oct 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Waveguide switches, Antenna feeds), (*Radar scanning, Waveguide switches), (*Radar tracking, Waveguide switches), Radar antennas, Luneberg lens antennas, Search radar, Patents.

The radar system has a single feed source of RF microwave energy and includes a geodesic Luneberg type lens antenna with a major stationary portion and a shiftable portion. The system includes a first and second concentrically arranged waveguide ring switch comprising a common stationary member and, respectively, a continuously rotatable driven member and a rotatably positioned member.

Patent 3,215,368 **Field 17G, 16B**
DIRECTION COSINE LINKAGE.
Patent assigned to Navy,
by James W. Follin, Jr. and George C. Munro. 2 Nov 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Homing devices, Guided missiles), Interferometers, Patents.

The system is designed to home a missile upon a target by use of an interferometer system. The target is illuminated by a ground based tracking radar. The system includes two pair of antennas, circuitry for combining the outputs of the antennas to provide a signal indicating target bearing, a servo controlled relatively movable platform in the missile. The servo is responsive to the bearing signal to position the platform. A gyroscope on the platform provides an output indicative of platform motion. This output is used for computing signals for steering the missile.

Patent 3,215,842 **Field 17B, 20E**
OPTICAL COMMUNICATIONS SYSTEM.
Patent assigned to NASA,
by Numa E. Thomas. 2 Nov 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Light communication systems, Design), (*Lasers, Communication systems), Patents.

Intelligence is transmitted between two points by modulation of a beam of light. By use of a laser as the light source and by providing an astronaut explorer on the moon's surface with a passive reflector, voice communication could be maintained by utilizing the device. The system cannot be moni-

tored. Two-way communication could be achieved by simply mounting a passive modulator on each source-receiver unit.

Patent 3,216,010 **Field 17I**
RANGE INDICATING SYSTEM.
Patent assigned to AEC,
by Conrad W. Roeschke. 2 Nov 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Range finding, Radar equipment), (*Continuous wave radar, Range finding), Patents, Warning systems.

The system is particularly useful in a radar system but it is applicable in a sonar system. The system is useful in case of a descending airplane or a ship at sea to indicate the proximity of a danger. In one application, use is made of a range determining method in which a radar signal modulated in amplitude is transmitted toward a reflecting object and the reflected signal is compared in phase of modulation with the transmitted signal. The system provides, when coupled with a phase meter, an altimeter using an amplitude-modulated continuous wave.

Patent 3,217,327 **Field 17C**
RADIO DIRECTION FINDER.
Patent assigned to Army,
by Walter C. Grubb, Jr. 9 Nov 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Direction finding, Radio equipment), (*Radio equipment, Direction finding), (*Tracking, Direction finding), Patents.

The radio direction finder tracking system includes a receiver antenna, a plurality of phase controlled variable gates, a variable phase and frequency oscillator, a differencing circuit and a servo system connected to the differencing circuit for controlling the position of the antenna.

18. NUCLEAR SCIENCE AND TECHNOLOGY

ACNP-64604 **Field 18I, 18L**
CFSTI Prices: HC$3.00 MF$0.75
Allis-Chalmers Mfg. Co., Bethesda, Md. Atomic Energy Div.
LA CROSSE BOILING-WATER REACTOR RESEARCH AND DEVELOPMENT PROGRAM.
Quarterly technical rept. no. 5, Apr-Jun 64.
Aug 64, 55p Docket-115-5
Contract AT (11-1)-65418
Distribution: No limitation.

Descriptors: (*Boiling water reactors, Reactor operation).

ACNP-64628 **Field 18I, 18L**
CFSTI Prices: HC$3.00 MF$0.75
Allis-Chalmers Mfg. Co., Bethesda, Md. Atomic Energy Div.
LA CROSSE BOILING-WATER REACTOR RESEARCH AND DEVELOPMENT PROGRAM.
Quarterly technical rept no. 6, Jul-Sep 64,
Nov 64, 65p Docket-111-5
Distribution: No limitation.

Descriptors: (*Boiling water reactors, Reactor operation).

ACNP-65531 **Field 18K, 18I**
CFSTI Prices: HC$1.00 MF$0.50
Allis-Chalmers Mfg. Co., Milwaukee, Wis. Atomic Energy Div.
PATHFINDER ATOMIC POWER PLANT.
Technical progress rept. for Apr-Jun 64.
20 Apr 65, 20p
Contract AT (11-1)-589
Distribution: No limitation.

Descriptors: (*Power reactors, Reactor operation), (*Reactor operation, Power reactors).

ACNP-65533 **Field 18K**
CFSTI Prices: HC$2.00 MF$0.50
Allis-Chalmers Mfg. Co., Bethesda, Md. Atomic Energy Div.
ANALYSIS OF CLUSTERED-PIN SUPERHEATER LATTICE EXPERIMENTS,
by P. S. Lacy and J. W. Lewellen. 30 Apr 65, 37p
Contract AT (11-1)-589
Distribution: No limitation.

Descriptors: (*Critical assemblies, Thermal utilization), (*Reactor lattice parameters, Critical assemblies).

AD-460 599 **Field 18D**
CFSTI Price: HC$1.00
Naval Radiological Defense Lab., San Francisco, Calif.
CALCULATED EFFICIENCIES OF LITHIUM-DRIFTED GERMANIUM DETECTORS,
by H. P. Hotz, J. M. Mathiesen, and J. P. Hurley. 3 Feb 65, 24p USNRDL-TR-817
Distribution: No limitation.

Descriptors: (*Gamma emission, Crystal counters), Gamma counters, Decoy schemes, Germanium, Lithium, Intensity, Measurement, Programming (Computers).

Gamma-ray detection efficiencies for Ge (Li) detectors were calculated on an IBM 704 for crystals of 1.0 x 2.0 cm and 2.0 x 3.0 cm cross section. Depletion depths from 1.0 to 10.0 mm and source-to-crystal distances from 1.0 to 25 cm. were selected. (Author)

ANL-7011 **Field 18K**
CFSTI Prices: HC$2.00 MF$0.50
Argonne National Lab., Ill.
METHOD FOR NEUTRON-FLUX STUDIES IN AN OPERATING POWER REACTOR USING BARE AND CADMIUM-COVERED RADIOACTIVANTS,
by W. G. Knapp. Mar 65, 26p
Contract W-31-109-eng-38
Distribution: No limitation.

Descriptors: (*Power reactors, Neutron flux), (*Neutron flux, Power reactors).

ANL-7024 **Field 18K**
CFSTI Prices: HC$1.00 MF$0.50
Argonne National Lab., Ill.
TABLES OF RESONANCE INTEGRAL FUNCTIONS, L' (Z',Xi),
by Edwin M. Pennington. Mar 65, 19p
Contract W-31-109-eng-38
Distribution: No limitation.

Descriptors: (*Integration, Functions), (*Resonance, Tables).

ANL-7026 **Field 18I, 18M**
CFSTI Prices: HC$2.00 MF$0.50
Argonne National Lab., Ill.
THERMAL-NEUTRON FLUXES FOR CP-5 VERTICAL IRRADIATION FACILITIES,
by D. S. Frazier. Mar 65, 30p
Contract W-31-109-eng-38
Distribution: No limitation.

Descriptors: (*Thermal neutrons, Neutron flux), (*Neutron flux, Graphics).

APDA-169 **Field 18M, 18J, 18I**
CFSTI Prices: HC$3.00 MF$0.75
Atomic Power Development Associates, Inc., Detroit, Mich.
TOPICAL REPORT ON THE EVALUATION OF EOCR AS A FAST FUEL TEST FACILITY,
by P. R. Huebotter. 25 Jun 65, 59p
Contract AT (11-1)-865
Distribution: No limitation.

Descriptors: (*Organic cooled reactors, Test facilities), (*Fast reactors, Reactor fuels).

APDA-170 **Field 18I, 18J, 18L**
CFSTI Prices: HC$3.00 MF$0.75
Atomic Power Development Associates, Inc., Detroit, Mich.
AEC-SPONSORED ACTIVITIES.
Quarterly technical progress rept. for Jan-Mar 65. 1965, 71p
Contract AT (11-1)-865
Distribution: No limitation.

Descriptors: (*Power reactors, Scientific research), Reactor fuels, Reactor coolants.

BAW-3238-7 **Field 18I**
CFSTI Prices: HC$3.00 MF$0.75
Babcock and Wilcox Co., Lynchburg, Va. Atomic Energy Div.
NONUNIFORM HEAT GENERATION EXPERIMENTAL PROGRAM.
Quarterly progress report no. 7, for Jan-Mar 65,
by D. F. Judd, R. H. Wilson and C. P. Welch. 1965, 85p EURAEC-1366
Contract AT (30-1)-3238
Distribution: No limitation.

Descriptors: (*Nuclear reactors, Heat transfer), (*Heat transfer, Nuclear reactors).

BAW-393-1 **Field 18L, 18I**
CFSTI Prices: HC$3.00 MF$0.75
Babcock and Wilcox Co., Lynchburg, Va. Atomic Energy Div.
THORIUM FUEL CYCLE FOR HEAVY WATER MODERATED ORGANIC COOLED REACTORS.
Quarterly technical rept. no. 1, for Jan-Mar 65, 1965, 75p
Contract AT (38-1)-393
Distribution: No limitation.

Descriptors: (*Breeder reactors, Reactor fuels), (*Organic cooled reactors, Breeder reactors).

BMI-X-10119 **Field 18D**
CFSTI Prices: HC$1.00 MF$0.50
Battelle Memorial Inst., Columbus, Ohio.
AN EVALUATION OF THE APPLICABILITY OF EXISTING DATA TO THE ANALYTICAL DESCRIPTION OF A NUCLEAR-REACTOR ACCIDENT.
Quarterly progress rept. for Jan-Mar 65,
by Duane N. Sunderman, David L. Morrison, James A. Cieseke, John C. Smith and Craig T. Walters. 1 Apr 65, 20p EURAEC-1369
Contract W-7405-eng-92
Distribution: No limitation.

Descriptors: (*Pressurized water reactors, Reactor accidents), (*Boiling water reactors, Reactor accidents).

BNL-9166 **Field 18B, 18F**
CFSTI Prices: HC$1.00 MF$0.50
Brookhaven National Lab., Upton, N. Y.
PREPARATION OF USEFUL BUT PRESENTLY UNAVAILABLE ISOTOPES,
by Louis G. Stang, Jr. 3 May 65, 18p CONF-641216-1
Contract AT (30-2)-GEN-16
Presented at IAEA Study Group Meeting on Research Reactor Utilization, Trombay, India. Distribution: No limitation.

Descriptors: (*Radioactive isotopes, Preparation), (*Nuclear reactors, Radioactive isotopes).

BNL-9271 **Field 18J**
CFSTI Prices: HC$1.00 MF$0.50
Brookhaven National Lab., Upton, N. Y.
TRANSURANIUM ELEMENT PRODUCTION IN EPITHERMAL REACTORS,
by L. G. Epel, J. Chernick, B. Manowitz andW. E. Winsche. Jun 65, 25p CONF-650602-30
Contract AT (30-2)-GEN-16
Prepared for presentation at American Nuclear Society Annual Meeting (11th), Gatlinburg, Tenn., 21-24 Jun 1965. Distribution: No limitation.

Descriptors: (*Transuranium elements, Production), (*Production reactors, Neutron capture).

BNWL-SA-123 **Field 18G, 4A**
CFSTI Prices: HC$1.00 MF$0.50
Battelle-Northwest, Richland, Wash. Pacific Northwest Lab.
DEVELOPMENT OF AN ATMOSPHERIC TRANSPORT MODEL,
by J. J. Fuquay and C. L. Simpson. 5 Mar 65, 25p CONF-650407-10
Contract AT (45-1)-1830
Prepared for Presentation at International Symposium on Fission Product Release and Transport Under Accident Conditions, Oak Ridge, Tenn., 5-7 Apr 1965. Distribution: No limitation.

Descriptors: (*Transport properties, Fission products), (*Atmosphere, Transport properties).

BNWL-SA-125 **Field 18D**
CFSTI Prices: HC$3.00 MF$1.00
Battelle-Northwest, Richland, Wash. Pacific Northwest Lab.
ENVIRONMENTAL MONITORING LECTURE NOTES,
by J. K. Soldat. Mar 65, 67p CONF-650529-1
Contract AT (45-1)-1830
Presented at Health Physics Certification Training Course, Richland, Wash. Distribution: No limitation.

Descriptors: (*Radiation monitors, Environment), (*Radiation hazards, Health physics).

BNWL-SA-6 **Field 18D**
CFSTI Prices: HC$1.00 MF$0.50
Pacific-Northwest, Richland, Wash. Pacific Northwest Lab.
THE HANFORD CRITICALITY ACCIDENT: DOSIMETRY TECHNIQUES, INTERPRETATIONS AND PROBLEMS,
by Herbert M. Parker and C. E. Newton, Jr. 11 Jan 65, 20p CONF-650302-21
Contract AT (45-1)-1830
Presented at IAEA Symposium on Personnel Dosimetry for Accidental High-Level Exposure to External and Internal Radiation, Vienna. Distribution: No limitation.

Descriptors: (*Health physics, Symposia), (*Radiological dosage, Health physics).

BNWL-SA-99 **Field 18K, 18E**
CFSTI Prices: HC$2.00 MF$0.50
Battelle-Northwest, Richland, Wash. Pacific Northwest Lab.
ANALOG SIMULATION OF HANFORD DUAL PURPOSE REACTOR PLANT,
by K. D. Coughren, C. D. Swanson and G. C. Thieme. 9 Mar 65, 27p CONF-650319-1
Contract AT (45-1)-1830
Distribution: No limitation.

Descriptors: (*Nuclear power plants, Simulation).

BNWL-52 **Field 18J, 18L**
CFSTI Prices: HC$1.00 MF$0.50
Battelle-Northwest, Richland, Wash. Pacific Northwest Lab.
EXPONENTIAL EXPERIMENTS AND NEUTRON MULTIPLICATION MEASUREMENTS WITH 1.25 WT PERCENT ENRICHED N-REACTOR FUEL ELEMENTS IN LIGHT WATER,
by C. L. Brown, R. C. Lloyd, S. R. Bierman andE. D. Clayton. Mar 65, 12p
Contract AT (45-1)-1830
Distribution: No limitation.

Descriptors: (*Power reactors, Reactor fuel elements), (*Reactor fuel elements, Safety).

BNWL-57 **Field 18G, 18J, 11F**
CFSTI Prices: HC$2.00 MF$0.50
Battelle-Northwest, Richland, Wash. Pacific Northwest Lab.
RECOVERY OF PLUTONIUM AND URANIUM FROM REACTOR FUEL METALLURGICAL SCRAP,
by W. W. Schulz. Jun 65, 30p
Contract AT (45-1)-1830
Distribution: No limitation.

Descriptors: (*Reactor fuel processing, Solvent extraction), (*Plutonium, Solvent extraction), (*Uranium, Solvent extraction).

BNWL-72 **Field 18B, 7D, 18G**
CFSTI Prices: HC$2.00 MF$0.50
Battelle-Northwest, Richland, Wash. Pacific Northwest Lab.
RUTHENIUM REMOVAL FROM INTERMEDIATE LEVEL RADIOACTIVE WASTES BY ELECTRODIALYSIS METHODS,
by L. F. Coleman and J. R. Eliason. 1 Apr 65, 27p
Contract AT (45-1)-1830
Distribution: No limitation.

Descriptors: (*Ruthenium, Radioactive waste), (*Isotope separation, Ruthenium), Electrodialysis.

BNWL-78 **Field 18B, 7E, 7A**
CFSTI Prices: HC$1.00 MF$0.50
Battelle-Northwest, Richland, Wash. Pacific Northwest Lab.
HOT-CELL STUDIES ON THE SEPARATION OF PROTACTINIUM-233 FROM IRRADIATED THORIA BY COPRECIPITATION WITH MANGANESE DIOXIDE,
by L. L. Humphreys. Jul 65, 12p
Contract AT (45-1)-1830
Distribution: No limitation.

Descriptors: (*Protactinium, Isotope separation), (*Isotope separation, Protactinium), Radioactive isotopes, Thorium compounds, Oxides, Chemical precipitation, Manganese compounds, Dioxides.

BNWL-80 **Field 18G, 7E**
CFSTI Prices: HC$2.00 MF$0.50
Battelle-Northwest, Richland, Wash. Pacific Northwest Lab.
SOLIDIFICATION OF HIGH LEVEL WASTES. PART IV. PHOSPHATE MELTS FOR FIXATION OF RADIOACTIVE RESIDUES FROM PUREX TYPE WASTESTHREE TO FIFTY PERCENT FISSION PRODUCT OXIDES,
by G. B. Barton. Jul 65, 39p
Contract AT (45-1)-1830
Distribution: No limitation.

Descriptors: (*Radioactive waste, Phosphates).

BNWL-89 **Field 18M**
CFSTI Prices: HC$3.00 MF$0.75
Battelle-Northwest, Richland, Wash. Pacific Northwest Lab.
FAST NEUTRON FLUX CHARACTERISTICS OF THE ETR, G-7 HOT WATER LOOP,
by A. L. Bement, J. E. Irvin, and R. E. Dahl. Aug 65, 78p
Contract AT (45-1)-1830
Distribution: No limitation.

Descriptors: (*Fast reactors, Neutron flux), (*Neutron flux, Fast reactors).

CEND-3107-238 **Field 18J**
CFSTI Prices: HC$2.00 MF$0.50
Combustion Engineering, Inc., Windsor, Conn. Nuclear Div.
BURNABLE POISON ADDITIONS TO U02.
Progress rept. for 1 Jan-31 Mar 65,
by R. C. Brayer and W. P. Chernock. May 65, 42p EURAEC-1438
Contract AT (30-1)-3107
Distribution: No limitation.

Descriptors: (*Burnable poisons, Reactor fuels), (*Uranium compounds, Reactor fuels), Dioxides.

CEND-3336-237 **Field 18I, 14B**
CFSTI Prices: HC$1.00 MF$0.50
Combustion Engineering, Inc., Windsor, Conn. Nuclear Div.
DEVELOPMENT AND TESTING OF A TEMPERATURE TRANSIENT METHOD FOR PERFORMING IN-PILE THERMAL CONDUCTANCE TESTING.
Progress rept. 1 Jan-31 Mar 65,
by C. E. Burdg. Apr 65, 20p EURAEC-1371
Contract AT (30-1)-3336
Distribution: No limitation.

Descriptors: (*Thermal conductivity, Nuclear reactors), (*Nuclear reactors, Instrumentation).

CONF-193-11 **Field 18I, 18K, 18L**
CFSTI Prices: HC$2.00 MF$0.50
Argonne National Lab., Ill.
BREEDING, SAFETY AND FUEL CYCLES,
by David Okrent. 1963, 35p
Contract W-31-109-eng-38
Prepared for Presentation at Nuclear Congress (8th), Rome, Italy 17-23 June 1963. Distribution: No limitation.

Descriptors: (*Reactor physics, Symposia), (*Breeder reactors, Liquid cooled reactors).

CONF-650501-6 **Field 18I, 9B**
CFSTI Prices: HC$1.00 MF$0.50
Knolls Atomic Power Lab., Schenectady, N. Y.
THE AUTOMATION OF REACTOR DESIGN CALCULATIONS AT THE KNOLLS ATOMIC POWER LABORATORY,
by E. D. Reilly, Jr., and W. H. Turner. 1965, 16p
Contract W-31-109-eng-52
Prepared for presentation at The Application of Computing Methods to Reactor Problems, Argonne, Ill. Distribution: No limitation.

Descriptors: (*Nuclear reactors, Design), (*Programming (Computers), Design).

CONF-650602-28 **Field 18J, 11F, 18I, 18L**
CFSTI Prices: HC$2.00 MF$0.50
Dupont de Nemours (E. I.) and Co., Wilmington, Del.
URANIUM OXIDE TUBES FOR HEAVY-WATER POWER REACTORS. PROJECTED ECONOMICS AND REACTOR PERFORMANCE,
by R. R. Hood. 15 Jun 65, 41p
Contract AT (07-2)-1
Prepared for Presentation at American Nuclear Society Annual Meeting (11th), Gatlinburg, Tenn., 21 Jun 1965. Distribution: No limitation.

Descriptors: (*Heavy water reactors, Reactor fuels), (*Reactor fuels, Pipes), Uranium compounds, Oxides.

CONF-650918-1 **Field 18G, 7B, 7A, 18J**
CFSTI Prices: HC$2.00 MF$0.50
Du Pont de Nemours (e. i.) and Co., Inc., Aiken, S. C. Savannah River Lab.
BEHAVIOR OF ACTINIDES AND FISSION PRODUCTS IN TRI-n-BUTYL PHOSPHATE AND IN DI-2-AMYL 2-BUTYLPHOSPHONATE SOLVENT EXTRACTION PROCESSES USING SHORT-RESIDENCE CONTACTORS,
by C. S. Schlea and A. S. Jennings. Sep 65, 34p
Contract AT (07-2)-1
Prepared for Presentation at International Conference on The Chemistry of The Solvent Extraction of Metals, Harwell, Berkshire, Eng., Sep 1965.
Distribution: No limitation.

Descriptors: (*Actinide series, Solvent extraction), (*Fission products, Solvent extraction).

CONF-654-56 **Field 18K, 18I**
CFSTI Prices: HC$1.00 MF$0.50
Phillips Petroleum Co., Idaho Falls, Idaho. Atomic Energy Div.
THE INFLUENCE OF SYSTEM PARAMETERS ON THE DYNAMIC RESPONSE OF A D20-MODERATED REACTOR,
by R. L. Johnson and J. A. Norberg. 1965, 9p
Contract AT (10-1)-205
Prepared for presentation at American Nuclear Society Meeting, San Francisco, Nov-Dec 1964.
Distribution: No limitation.

Descriptors: (*Heavy water reactors, Reactor operation), (*Reactor kinetics, Heavy water reactors).

CONF-758-2 **Field 18B, 20H**
CFSTI Prices: HC$1.00 MF$0.50
Knolls Atomic Power Lab., Schenectady, N. Y.
TOTAL CROSS SECTION MEASUREMENTS OF STABLE AND RADIOACTIVE ISOTOPES,
by G. D. Hickman. 12 Jan 65, 18p
Contract W-31-109-eng-52
Prepared for presentation at American Physical Society Meeting, New York, 27 Jan. 1965. Distribution: No limitation.

Descriptors: (*Neutron cross sections, Radioactive isotopes), (*Isotopes, Neutron cross sections).

COO-1199-6 **Field 18H, 6R, 4B**
CFSTI Prices: HC$4.00 MF$0.75
Illinois State Water Survey, Urbana.
RADIOACTIVE RAINOUT RELATIONS IN CONVECTIVE RAINSTORMS.
Research rept. no. 1,
by Floyd A. Huff. Mar 65, 135p
Contract AT (11-1)-1199
Distribution: No limitation.

Descriptors: (*Radioactive fallout, Rainfall), (*Rainfall, Radioactive fallout), Storms, Convection.

COO-283 **Field 18I, 7A**
CFSTI Prices: HC$5.00 MF$1.00
Bechtel Corp., San Francisco, Calif.
DEEP-POOL REACTOR FOR WATER DESALTING.
30 Jun 65, 164p
Contract AT (11-1)-1444
Distribution: No limitation.

Descriptors: (*Desalination, Light water reactors), (*Light water reactors, Desalination).

COO-652-16 **Field 18E, 18I**
CFSTI Prices: HC$1.00 MF$0.50
Piqua Nuclear Power Facility, Ohio.
PIQUA NUCLEAR POWER FACILITY.
Monthly operating rept no. 26,
Jun 65, 23p
Contract AT (11-1)-652
Distribution: No Limitation.

Descriptors: (*Nuclear power plants, Operation), (*Power reactors, Operation).

CVNA-219 **Field 18L**
CFSTI Prices: HC$2.00 MF$0.50
Westinghouse Electric Corp., Pittsburgh, Pa. Atomic Power Div.
CAROLINAS-VIRGINIA TUBE REACTOR. POSTCONSTRUCTION RESEARCH AND DEVELOPMENT PROGRAM. TASK CVPC-22. STUDY OF PRIMARY SYSTEM PRESSURE DROPS,
by W. R. Snyder. May 65, 39p
Contract AT (30-1)-2289
Distribution: No limitation.

Descriptors: (*Reactor system components, Reactor coolants), (*Reactor coolants, Reactor system components), Heavy water.

CVNA-221 **Field 18L, 18K, 18I**
CFSTI Prices: HC$2.00 MF$0.50
Westinghouse Electric Corp., Pittsburgh, Pa. Atomic Power Div.
ANALYSIS OF THE CVTR POST-CONSTRUCTION THERMAL AND HYDRAULIC DATA,
by R. O. Sandberg and A. A. Bishop. May 65, 45p
Contract AT (30-1)-2289
Distribution: No limitation.

Descriptors: (*Pressurized water reactors, Reactor operation), Thermal properties, Reactor coolants, Reactor physics.

CVNA-228 **Field 18I, 18L**
CFSTI Prices: HC$4.00 MF$0.75
Westinghouse Electric Corp., Pittsburgh, Pa. Atomic Power Div.
CAROLINAS VIRGINIA NUCLEAR POWER ASSOCIATES, INC. RESEARCH AND DEVELOPMENT PROGRAM.
Quarterly progress rept. for Jul-Sep 64.
1965, 114p
Contract AT (30-1)-2289
Distribution: No limitation.

Descriptors: (*Pressurized water reactors, Reactor operation), (*Reactor operation, Power reactors).

CVNA-231 **Field 18I**
CFSTI Prices: HC$2.00 MF$0.50
Carolinas Virginia Nuclear Power Associates, Inc., Parr, S. C.
MONTHLY OPERATING REPORT, MARCH 1965,
10c 1965, 37p
Contract AT (30-1)-2289
Distribution: No limitation.

Descriptors: (*Power reactors, Reactor operation), (*Reactor operation, Power reactions).

CVNA-232 **Field 18I, 18K, 18J**
CFSTI Prices: HC$2.00 MF$0.50
Westinghouse Electric Corp., Pittsburgh, Pa. Atomic Power Div.
TRANSIENT DNB TEST ON CVTR FUEL ASSEMBLY,
by L. S. Tong, A. A. Bishop, J. E. Casterline, andB. Matzner. Mar 65, 31p
Contract AT (30-1)-2289, AT (30-3)187
Distribution: No limitation.

Descriptors: (*Reactor fuels, Nucleate boiling), (*Reactor physics, Reactor fuels), Power reactors.

CVNA-239 **Field 18I, 18L**
CFSTI Prices: HC$2.00 MF$0.50
Carolinas Virginia Nuclear Power Associates, Inc., Parr, S. C.
MONTHLY OPERATING REPORT.
Jun 65, 36p
Contract AT (30-1)-2280
Distribution: No limitation.

Descriptors: (*Power reactors, Reactor operation), (*Reactor operation, Power reactors).

DP-966 **Field 18G, 9B**
CFSTI Prices: HC$2.00 MF$0.50
Du Pont De Nemours (E. I.) and Co., Aiken, S.C. Savannah River Lab.
TAFI-II, A COMPUTER CODE FOR MANAGEMENT OF RADIOACTIVE WASTE,
by Catherine R. Tharin. Aug 65, 42p
Contract AT (07-2)-1
Distribution: No limitation.

Descriptors: (*Radioactive waste, Programming (Computers)).

Identifiers: TAFI-II.

DP-999 **Field 18B, 18I, 18J, 18K,2**
CFSTI Prices: HC$3.00 MF$0.75
Du Pont De Nemours (E. I.) and Co., Aiken, S.C. Savannah River Lab.
THE SAVANNAH RIVER HIGH FLUX DEMONSTRATION,
comp. by J. L. Crandall. Jun 65, 81p
Contract AT (07-2)-1
Papers presented at the American Nuclear Society Annual Meeting (11th), Gatlinburg, Tenn., 21 Jun 65. Distribution: No limitation.

Descriptors: (*Production reactors, Reactor lattice parameters), (*Reactor lattice parameters, Production reactors).

DPST-65-83-1 **Field 18I, 18L**
CFSTI Prices: HC$1.00 MF$0.50
Du Pont De Nemours (E. I.) and Co., Aiken, S.C. Savannah River Lab.
USAEC-AECL COOPERATIVE PROGRAM.
Monthly progress rept. Jan 65,
comp. by H. S. Hilborn. 26 Feb 65, 9p
Contract AT (07-2)-1
Distribution: No limitation.

Descriptors: (*Heavy water reactors, Power reactors), (*Reactor physics, Heavy water reactors), Reactor coolants, Water, Heat transfer fuel rods.

EGG-1183-1130 **Field 18I, 9E**
CFSTI Prices: HC$1.00 MF$0.50
Edgerton, Germeshausen and Grier, Inc., Las Vegas, Nev.
OPERATIONAL AMPLIFIERS FOR MAXIMUM FLEXIBILITY IN REACTOR CONTROLS,
by Ezra Budge. 13 Apr 65, 23p CONF-650412-1
Contract AT (29-1)-1183
Presented at IEEE Convention, Las Vegas, Nev.
Distribution: No limitation.

Descriptors: (*Reactor control, Amplifiers), (*Amplifiers, Reactor control).

EURAEC-1274 **Field 18J, 11F**
CFSTI Prices: HC$1.00 MF$0.50
Metallgesellschaft A. G., Frankfurt am Main (West Germany).
FURTHER DEVELOPMENT OF THE ZIRCONIUM ALLOY ZrNb3Sn1 WITH A VIEW TO ITS USE AS CLADDING MATERIAL IN WATER-COOLED NUCLEAR REACTORS.
Quarterly rept. no. 4, 1 Jul - 30 Sep 64.

10 Dec 64, 14p EUR-2075
Contract 019-63-11 TEED,
Proj. 139
Distribution: No limitation.

Descriptors: (*Zirconium alloys, Reactor fuel cladding), (*Reactor fuel cladding, Zirconium alloys).

EURAEC-1289 **Field 18D, 18L, 18I**
CFSTI Prices: HC$3.00 MF$0.75
Allgemeine Elektrizitaetsgesellscha ft, Frankfurt am Main (West Germany).
STABILITY TESTS FOR BOILING WATER REACTORS.
Quarterly rept. no. 3 for 1 Oct-31 Sep 64.
31 Sep 64, 55p EUR-2089
Contract 020-64-4 TEED
Distribution: No limitation.

Descriptors: (*Boiling water reactors, Stability), (*Test methods, Boiling water reactor).

EURAEC-1379 **Field 18L**
CFSTI Prices: HC$2.00 MF$0.50
Commissariat a l'Energie Atomique, Grenoble (France). Centre d'Etudes Nucleaires.
HYDRODYNAMIC INSTABILITY LIMITING THE POWER OF BOILING WATER REACTORS.
Quarterly rept. no. 4, 1 Oct-31 Dec 64,
by J. Boure. 5 Mar 65, 46p EUR-2940
Contract 006-64-1 TEEF,
Proj. 207
Distribution: No limitation.

Descriptors: (*Boiling water reactors, Fluid dynamic properties).

GA-6096 **Field 18K, 20H**
CFSTI Prices: HC$3.00 MF$0.75
General Atomic, San Diego, Calif. John Jay Hopkins Lab. for Pure and Applied Science.
INTEGRAL NEUTRON THERMALIZATION.
Quarterly progress rept. for the period ending 31 Dec 64,
by J. R. Beyster, J. U. Koppel, Y. D. Naliboff, D. A. Houston, and J. A. Young. 28 Jan 65, 78p

Contract AT (04-3)-167
Distribution: No limitation.

Descriptors: (*Neutron scattering, Thermal neutrons), (*Thermal neutrons, Neutron transport theory).

GA-6146 **Field 18L**
CFSTI Prices: HC$2.00 MF$0.50
General Atomic, San Diego, Calif. John Jay Hopkins Lab. for Pure and Applied Science.
HTGR FUEL CYCLE ASSESSMENT STUDIES,
by H. B. Stewart, S. Jaye, and R. C. Traylor. 11 May 65, 46p CONF-650606-6
Contract AT (04-3)-167
Distribution: No limitation.

Descriptors: (*Reactor fuels, Reactor operation).

GA-6283 **Field 18K**
CFSTI Prices: HC$2.00 MF$0.50
General Atomic, San Diego, Calif. John Jay Hopkins Lab. for Pure and Applied Science.
AN ADIABATIC TREATMENT OF THE XENON PROBLEM,
by Richard Scalettar. 2 Apr 65, 29p CONF-650413-4
Contract AT (04-3)-167
For presentation at Symposium on Neutron Dynamics and Control, Tucson, Ariz., 1965. Distribution: No limitation.

Descriptors: (*Xenon, Neutron flux), (*Neutron flux, Xenon).

GAMD-4737 **Field 18L**
CFSTI Prices: HC$2.00 MF$0.50
General Atomic, San Diego, Calif. John Jay Hopkins Lab. for Pure and Applied Science.
STEAM CYCLE STUDIES FOR TARGET,
by K. Stadie and D. Rose. 30 Jan 63, 29p
Contract AT (04-3)-167
Distribution: No limitation.

Descriptors: (*Power reactors, Steam).

GAMD-6027 **Field 18I**
CFSTI Prices: HC$1.00 MF$0.50
General Atomic, San Diego, Calif. John Jay Hopkins Lab. for Pure and Applied Science.
PLEXIGLASS MODEL FOR THE TARGET CONCRETE PRESSURE VESSEL,
by R. J. Kiefer. 9 Nov 64, 19p
Contract AT (04-3)-167
Distribution: No limitation.

Descriptors: (*Pressure vessels, Concrete), (*Acrylic resins, Pressure vessels).

GEAP-4637 **Field 18I, 20M**
CFSTI Prices: HC$4.00 MF$1.00
General Electric Co., San Jose, Calif. Atomic Power Equipment Dept.
HEAT TRANSFER IN PARALLEL ROD ARRAYS,
by W. A. Sutherland and W. M. Kays. Apr 65, 131p
Contract AT (04-3)-189
Distribution: No limitation.

Descriptors: (*Heat transfer, Reactor fuel rods), (*Reactor fuel rods, Heat transfer).

GEAP-4721 **Field 18I, 20M**
CFSTI Prices: HC$2.00 MF$0.50
General Electric Co., San Jose, Calif. Atomic Power Equipment Dept.
MULTIROD (TWO-ROD) TRANSITION AND FILM BOILING IN FORCED CONVECTION TO WATER AT 1000 PSIA,
by J. E. Hench. Oct 64, 31p EURAEC-1262
Contract AT (04-3)-189
Distribution: No limitation.

Descriptors: (*Nuclear reactors, Heat transfer), (*Reactor fuel rods, Convection (Heat transfer)).

GEAP-4767 **Field 18L**
CFSTI Prices: HC$1.00 MF$0.50
General Electric Co., San Jose, Calif. Atomic Power Equipment Dept.
DEVELOPMENT OF PULSED NEUTRON APPLICATION TO POWER REACTOR START-UP PROCEDURES.
Quarterly progress rept. no. 11, 1 Oct-31 Dec 64,
by E. Garelis and P. Meyer. 25 Jan 65, 9p
Contract AT (04-3)-189
Distribution: No limitation.

Descriptors: (*Reactor start-up sources, Neutrons), (*Power reactors, Reactor start-up sources).

GEAP-4810 **Field 18J, 18L**
CFSTI Prices: HC$5.00 MF$1.25
General Electric Co., San Jose, Calif. Atomic Power Equipment Dept.
EVESR-NUCLEAR SUPERHEAT FUEL DEVELOPMENT PROJECT.
Quarterly rept. no. 11, Dec 64-Feb 65,
by J. L. Murray. Mar 65, 188p
Contract AT (04-3)-189
Distribution: No limitation.

Descriptors: (*Reactor fuels, Scientific research), Reactor fuel processing.

GEAP-4816 **Field 18L**
CFSTI Prices: HC$3.00 MF$0.75
General Electric Co., San Jose, Calif. Atomic Power Equipment Dept.
HIGH POWER DENSITY DEVELOPMENT PROJECT.
Quarterly progress rept. Oct 1964-Feb 1965,
by R. L. Holladay. 1 Mar 65, 75p
Contract AT (04-3)-361
Distribution: No limitation.

Descriptors: (*Reactor power density, Boiling water reactors).

GEAP-4817 **Field 18J, 18K**
CFSTI Prices: HC$2.00 MF$0.50
General Electric Co., San Jose, Calif. Atomic Power Equipment Dept.
ACCURATE NUCLEAR FUEL BURNUP ANALYSIS.
Quarterly progress rept. no. 13, Dec 64-Feb 65,
by B. F. Rider, C. P. Ruiz, J. P. Peterson, Jr., R. S. Seymour and F. R. Smith. 1 Mar 65, 35p
Contract AT (04-3)-189
Distribution: No limitation.

Descriptors: (*Fuel burnup, Radiochemistry), (*Mass spectroscopy, Fuel burnup).

GEAP-4852 **Field 18I, 18J, 18L**
CFSTI Prices: HC$3.00 MF$0.50
General Electric Co., San Jose, Calif. Atomic Power Equipment Dept.
CORE EVALUATION OF THE GARIGLIANO REACTOR,
by W. V. Macnabb. 1 May 65, 51p EURAEC-1444
Contract AT (04-3)-189
Distribution: No limitation.

Descriptors: (*Boiling water reactors, Reactor cores), (*Reactor cores, Boiling water reactors), Reactor operation.

GEMP-344 **Field 18K, 21F**
CFSTI Prices: HC$6.00 MF$2.00
General Electric Co. Cincinnati, Ohio. Nuclear Materials and Propulsion Operation.
630A CRITICAL EXPERIMENT TEST RESULTS.
Rept. for 4 Feb 64-2 Nov 64,
by G. D. Pincock, M. A. Jacoby and G. R. Archibald, Jr. 19 Feb 65, 275p
Contract AT (40-1)-2847
Distribution: No limitation.

Descriptors: (*Reactor operation, Critical assemblies), (*Critical assembles, Reactor operation).

HW-SA-3632 **Field 18I, 20M**
CFSTI Prices: HC$1.00 MF$0.50
Hanford Atomic Products Operation, Richland, Wash.
GRAPHICAL SOLUTION FOR BRANCHING PIPE FLOWS,
by Claud C. Lomax. 27 Jun 64, 25p
Contract AT (45-1)-1350
Distribution: No limitation.

Descriptors: (*Pipes, Heat transfer), (*Gas flow, Pipes).

HW-74640 **Field 18D, 18K**
CFSTI Prices: HC$1.00 MF$0.50
Hanford Atomic Products Operation, Richland, Wash.
NEUTRON MULTIPLICATION MONITOR,
by J. D. Lodge. 21 Aug 62, 14p
Contract AT (45-1)-1350
Distribution: No limitation.

Descriptors: (*Radiation monitors, Neutron flux), (*Multiplication factor, Reactor control).

HW-77979 **Field 18G**
CFSTI Prices: HC$1.00 MF$0.50
Hanford Atomic Products Operation, Richland, Wash.
INSTRUMENTATION FOR CALCINER PRODUCT CANISTERS--LEVEL DETECTION,
by C. E. Huck. 27 Jun 63, 9p
Contract AT (45-1)-1350
Distribution: No limitation.

Descriptors: (*Radioactive waste, Containers), (*Liquid level gages, Radioactive waste).

HW-81460 **Field 18K**
CFSTI Prices: HC$1.00 MF$0.50
Hanford Atomic Products Operation, Richland, Wash.
TECHNICAL CRITERIA FOR THE PREVENTION OF CRITICALITY: CHEMICAL PROCESSING DEPARTMENT,
by W. S. Frank. 8 Apr 64, 8p
Contract AT (45-1)-1350
Distribution: No limitation.

Descriptors: (*Criticality, Control).

HW-83609 **Field 18G**
CFSTI Prices: HC$2.00 MF$0.50
Hanford Atomic Products Operation, Richland, Wash.
PROGRESS IN FISSION PRODUCT RECOVERY AT HANFORD. A SUMMARY OF HANFORD LABORATORIES ACHIEVEMENTS IN THIS PROGRAM UNDER GENERAL ELECTRIC, 1954-1964,
by R. L. Moore. Nov 64, 28p
Contract AT (45-1)-1350
Distribution: No limitation.

Descriptors: (*Fission products, Processing).

HW-84229 **Field 18I**
CFSTI Prices: HC$1.00 MF$0.50
Hanford Atomic Products Operation, Richland, Wash.
PRTR PRIMARY SYSTEM RADIATION STUDY,
by J. A. Stoddard. 28 Sep 64, 19p
Contract AT (45-1)-1350
Distribution: No limitation.

Descriptors: (*Test reactors, Plutonium), (*Plutonium, Test reactors).

HW-84512RD **Field 18J**
CFSTI Prices: HC$1.00 MF$0.50
Hanford Atomic Products Operation, Richland, Wash.
SPECIFICATION FOR NUCLEAR GRADE MIXED OXIDES (U02-PU02). HANFORD SALT CYCLE COMPACTIBLE POWDER,
by H. J. Anderson. 16 Nov 64, 7p
Contract AT (45-1)-1350
Distribution: No limiation.

Descriptors: (*Reactor fuels, Specifications), (*Uranium compounds, Dioxides), (*Plutonium compounds, Dioxides).

HW-84544 APP 4 **Field 18I, 18L**
CFSTI Prices: HC$1.00 MF$0.50
General Electric Co., Hanford Atomic Products Operation, Richland, Wash.
CALCULATED REACTOR PARAMETERS FOR THE HIGH POWER DENSITY CORE IN PRTR, APPENDIX IV.
by R. I. Smith and J. L. Maryott. 3 Dec 64, 7p
Contract AT (45-1)-1350
Distribution: No limitation.

Descriptors: (*Reactor reactivity, Mathematical analysis), (*Fission products, Reactor poisoning).

HW-84575 **Field 18I**
CFSTI Prices: HC$2.00 MF$0.75
Hanford Atomic Products Operation, Richland, Wash.
NUCLEAR DESIGN CALCULATIONS FOR AN H - P FUELED MTR,
by R. H. Holeman and P. L. Hofmann. 15 Dec 64, 47p
Contract AT (45-1)-1350
Distribution: No limitation.

Descriptors: (*Test reactors, Plutonium), (*Plutonium, Test reactors).

IDO-14653 **Field 18G, 7A**
CFSTI Prices: HC$2.00 MF$0.50
Phillips Petroleum Co., Idaho Falls, Idaho. Atomic Energy Div.
FLUIDIZED BED CALCINATION OF SIMULATED ZIRCONIUM FLUORIDE WASTE IN EXPLORATORY PILOT PLANT TESTS,
by J. C. Petrie, E. J. Bailey, D. W. Rhodes, and B. M. Legler. Jul 65, 37p
Contract AT (10-1)-205
Distribution: No limitation.

Descriptors: (*Radioactive waste, Fluidized bed processes), (*Fluidized bed processes, Radioactive waste).

Identifiers: Calcination, Zirconium fluoride.

IDO-14657 **Field 18G**
CFSTI Prices: HC$1.00 MF$0.50
Phillips Petroleum Co., Idaho Falls, Idaho. Atomic Energy Div.
DECONTAMINATION OF RADIOACTIVE EFFLUENT WITH CLINOPTILOLITE,
by D. W. Rhodes and M. W. Wilding. Jul 65, 14p
Contract AT (10-1)-205
Distribution: No limitation.

Descriptors: (*Radioactive waste, Decontamination).

Identifiers: Clinoptilolite.

IDO-16871-4 **Field 18I, 18M**
CFSTI Prices: HC$7.00 MF$1.50
Phillips Petroleum Co., Idaho Falls, Idaho. Atomic Energy Div.
FUNDAMENTALS IN THE OPERATION OF NUCLEAR TEST REACTORS. VOLUME 4. ENGINEERING AND DESIGN CONSIDERATIONS FOR IN-PILE TESTS.
Jul 65, 319p
Contract AT (10-1)-205
Distribution: No limitation.

Descriptors: (*Test reactors, Reactor operation), (*Reactor operation, Test reactors), Instruction manuals.

IDO-17042 **Field 18I, 18K, 18J, 18D**
CFSTI Prices: HC$3.00 MF$0.75
Phillips Petroleum Co., Idaho Falls, Idaho. Atomic Energy Div.
NUCLEAR TECHNOLOGY BRANCHES.
Quarterly rept. for 1 Apr-30 Jun 64.
Nov 64, 80p
Contract AT (10-1)-205
Distribution: No limitation.

Descriptors: (*Nuclear reactors, Scientific research), Reactor theory, Reactor materials, Reactor fuels.

IDO-17065 **Field 18J, 18N**
CFSTI Prices: HC$3.00 MF$0.75
Phillips Petroleum Co., Idaho Falls, Idaho. Atomic Energy Div.
POST-TEST PHYSICAL, CHEMICAL AND METALLURGICAL ANALYSIS OF SNAPTRAN-3 FUEL,
by R. D. Fletcher. Jun 65, 72p
Contract AT (10-1)-205
Distribution: No limitation.

Descriptors: (*Reactor fuels, Analysis).

Identifiers: SNAPTRAN.

IDO-17078 **Field 18I, 9B**
CFSTI Prices: HC$6.00 MF$1.25
Phillips Petroleum Co., Idaho Falls, Idaho. Atomic Energy Div.
SPORT. A SYSTEM FOR PROCESSING REACTOR TRANSIENT DATA ON THE IBM-7040 COMPUTER,
by B. J. Power, R. N. Hagen, and S. D. Johnson. Jul 65, 209p
Contract AT (10-1)-205
Distribution: No limitation.

Descriptors: (*Test reactors, Nuclear engineering), (*Programming (Computers), Test reactors).

Identifiers: FREQUENCY RESPONSE computer program, REACTIVITY computer program, SMOOTH computer program, IBM 7040, SPORT computer programs, SPERT.

IDO-17095 **Field 18H**
CFSTI Prices: HC$2.00 MF$0.50
Phillips Petroleum Co., Idaho Falls, Idaho. Atomic Energy Div.
A CORRELATION OF INTERACTION DATA WITH CALCULATIONS USING THE GELLER MODEL,
by J. K. Fox. Aug 65, 25p
Contract AT (10-1)205
Distribution: No limitation.

Descriptors: (*Critical assemblies, Buckling (Mechanics)), (*Nuclear reactions, Critical assemblies).

IDO-17097 **Field 18I, 18J, 18M, 10B**
CFSTI Prices: HC$2.00 MF$0.50
Phillips Petroleum Co., Idaho Falls, Idaho. Atomic Energy Div.
SPERT PROJECT.
Quarterly technical rept. for Jan-Mar 65,
ed. by J. G. Crocker. Jul 65, 28p
Contract AT (10-1)-205
Distribution: No limitation.

Descriptors: (*Thermocouples, Nuclear reactors), (*Reactor kinetics, Programming (Computers)).

IDO-24044 **Field 18I**
CFSTI Prices: HC$4.00 MF$0.75
Babcock and Wilcox Co., Lynchburg, Va. Atomic Energy Div. Ebasco Services, Inc., New York.
DESIGN CRITERIA FOR GAS COOLED LOOP IN THE ADVANCED TEST REACTOR,
May 63, 126p
Contract AT (10-1)-1075
Distribution: No limitation.

Descriptors: (*Test reactors, Gas-cooled reactors), (*Gas-cooled reactors, Design).

IDO-28645 **Field 18I, 18L**
CFSTI Prices: HC$3.00 MF$1.00
Aerojet-General Nucleonics, San Ramon, Calif.
ARMY GAS-COOLED REACTOR SYSTEMS PROGRAM.
Quarterly progress rept. 1 Jan-31 Mar 65.
14 May 65, 132p
Contract AT (10-1)-880
Distribution: No limitation.

Descriptors: (*Gas-cooled reactors, Reactor operation), (*Reactor operation, Gas-cooled reactors).

IITRI-578P26-8 **Field 18D, 18E**
CFSTI Prices: HC$3.00 MF$0.75
IIT Research Inst., Chicago, Ill. Technology Center.
A STUDY OF THE FEASIBILITY OF USING SCINTILLATING FIBERS FOR LOW ENERGY BETA COUNTING,
by G. Hardie, C. C. Preston, and J. J. Ezop. 5 Mar 65, 59p
Contract AT (11-1)-578
Distribution: No limitation.

Descriptors: (*Beta particles, Scintillation counters), (*Scintillation, Fibers).

K-1642 **Field 18D**
CFSTI Prices: HC$2.00 MF$0.50
Oak Ridge Gaseous Diffusion Plant, Tenn.
AN IMPROVED FAST NEUTRON MONITOR,
by G. B. Seaborn. 27 Aug 65, 28p
Contract W-7405-eng-26
Distribution: No limitation.

Descriptors: (*Fast neutrons, Monitors), (*Radiation measurement systems, Fast neutrons).

K-1650 **Field 18B, 7A**
CFSTI Prices: HC$4.00 MF$1.00
Oak Ridge Gaseous Diffusion Plant, Tenn.
THE SEPARATION OF POTASSIUM ISOTOPES BY MOLECULAR DISTILLATION,
by R. M. McGill, R. W. Browell, J. W. Grisard, S. Blumkin, and D. B. Janney. 29 Sep 65, 133p
Contract W-7405-eng-26
Distribution: No limitation.

Descriptors: (*Isotope separation, Potassium), (*Potassium, Isotope separation).

LA-DC-6786 **Field 18M, 18I**
CFSTI Prices: HC$2.00 MF$0.50
Los Alamos Scientific Lab., Univ. of California, N. Mex.
FAST BURST REACTORS IN THE U.S.A.,
by Thomas F. Wimett. 1965, 34p SM-62/53, CONF-650504-8
Contract W-7405-eng-36
Presented at IAEA Symposium on Pulsed Neutron Methods, Karlsruhe, Germany. Distribution: No limitation.

Descriptors: (*Fast reactors, United States), (*Fast reactors, Neutron).

LA-DC-6756 **Field 18K, 9B**
CFSTI Prices: HC$1.00 MF$0.50
Los Alamos Scientific Lab., Univ. of California, N. Mex.
USE OF DISCRETE ORDINATES METHODS FOR SOLUTION OF PHOTON TRANSPORT PROBLEMS,
by K. D. Lathrop. 1965, 20p CONF-650501-9
Contract W-7405-eng-36
For Presentation at The Application of Computing Methods to Reactor Problems, Argonne Ill. Distribution: No limitation.

Descriptors: (*Transport properties, Photons), (*Programming (Computers), Transport properties).

LA-DC-6891 **Field 18I, 9B**
CFSTI Prices: HC$1.00 MF$0.50
Los Alamos Scientific Lab., Univ. of California, N. Mex.
ULTRA HIGH TEMPERATURE REACTOR EXPERIMENT ON-LINE PROCESS COMPUTER,
by Howard B. Demuth, FRED P. Schilling, and Larry Weintroub. 1965, 21p CONF-650413-1
Contract W-7405-eng-36
Presented at Symposium on Neutron Dynamics and Control, Tucson, Ariz. Distribution: No limitation.

Descriptors: (*Reactor operation, High temperature research), (*Programming (Computers), Reactor operation).

LA-DC-6938 **Field 18G, 7E, 7B, 11F**
CFSTI Prices: HC$2.00 MF$0.50
Los Alamos Scientific Lab., Univ. of California, N. Mex.
METHODS FOR THE DETERMINATION OF PLUTONIUM IN SPENT REACTOR FUELS, PLUTONIUM METAL, ALLOYS AND COMPOUNDS,
by Charles F. Metz and Glenn R. Waterbury. 1965, 27p CONF-650803-6, SM-67/33
Contract W-7405-eng-36
Presented at the IAEA Symposium on Nuclear Materials Management, Vienna. Distribution: No limitation.

Descriptors: (*Plutonium, Determination), (*Reactor fuels, Chemical analysis), (*Plutonium alloys, Chemical analysis).

LA-DC-6947 **Field 18J, 20M**
CFSTI Prices: HC$1.00 MF$0.50
Los Alamos Scientific Lab., Univ. of California, N. Mex.
PRACTICAL APPLICATION OF THERMODYNAMICS TO PLUTONIUM PROCESS REACTIONS AT HIGH TEMPERATURE,
by J. A. Leary and L. J. Mullins. 11 Jun 65, 18p CONF-650704-9
Contract W-7405-eng-36
Presented at the IAEA Symposium on Thermodynamics, Vienna. Distribution: No limitation.

Descriptors: (*Reactor fuel processing, Thermodynamics), (*Refining (Metallurgy), Plutonium).

LA-DC-6958 **Field 18L**
CFSTI Prices: HC$1.00 MF$0.50
Los Alamos Scientific Lab., Univ. of California, N. Mex.
THE LOS ALAMOS COUPLED REACTOR EXPERIMENT: KINETIC ANALYSIS,
by C. G. Chezem and H. H. Helmick. 1965, 5p CONF-650602-12
Contract W-7405-eng-36
Presented at the American Nuclear Society Annual Meeting (11th), Gatlinburg, Tenn. Distribution: No limitation.

Descriptors: (*Power reactors, Reactor kinetics), (*Reactor kinetics, Power reactors).

LA-DC-7066 **Field 18J, 7D**
CFSTI Prices: HC$2.00 MF$0.50
Los Alamos Scientific Lab., Univ. of California, N. Mex.
PROCESSING OF PLUTONIUM BY ION EXCHANGE VI. PLUTONIUM (IV) SORPTION KINETICS ON DOWEX 1X4 FROM NITRATE SOLUTIONS,
by D. B. James. 1965, 30p CONF-650902-9
Contract W-7405-eng-36
Prepared for presentation at American Chemical Society, Sep 1965. Distribution: No limitation.

Descriptors: (*Plutonium, Sorption), (*Ion exchange, Plutonium).

LA-3234 **Field 18A, 20I**
CFSTI Prices: HC$1.00 MF$0.50
Los Alamos Scientific Lab., Univ. of California, N. Mex.
THE DEVELOPMENT OF AN INTERLEAVED, FRACTIONAL-TURN COIL,
by Robert S. Dike, Edwin L. Kemp, and John Marshall. 1 Apr 65, 6p
Contract W-7405-eng-38
Distribution: No limitation.

Descriptors: (*Coils, Magnetic fields), (*Magnetic pinch, Coils).

LA-3319 **Field 18D**
CFSTI Prices: HC$2.00 MF$0.50
Los Alamos Scientific Lab., Univ. of California, N. Mex.
MEASUREMENT OF HELIUM AND HYDROGEN VISCOSITIES TO 2340 DEG K,
by F. A. Guevara and W. B. Wageman. Jan 65, 39p
Contract W-7405-eng-36
Distribution: No limitation.

Descriptors: (*Helium, Viscosity), (*Hydrogen, Viscosity), Test methods, Laboratory equipment.

LA-3333 **Field 18J, 7B**
CFSTI Prices: HC$1.00 MF$0.50
Los Alamos Scientific Lab., Univ. of California, N. Mex.
THE X-RAY FLUORESCENCE SPECTROMETRIC DETERMINATION OF PLUTONIUM IN URANIUMPLUTONIUM-MANGANESE ALLOYS,
by E. A. Hakkila, R. G. Hurley, and G. R. Waterbury.
1 Mar 65, 15p
Contract W-7405-eng-36
Distribution: No limitation.

Descriptors: (*Plutonium, X-ray spectroscopy), (*X-ray spectroscopy, Plutonium alloys).

LA-3338 **Field 18J, 7D**
FSTI Prices: HC$1.00 MF$0.50
Los Alamos Scientific Lab., Univ. of California, N. Mex.
THE SOLUBILITY OF SELECTED ELEMENTS IN LIQUID PLUTONIUM. V. REVISIONS TO THE TANTALUM STUDY,
by D. F. Bowersox and J. A. Leary. 7 Jun 65, 9p
Contract W-7405-eng-36
See also LAMS-2952. Distribution: No limitation.

Descriptors: (*Plutonium, Impurities), (*Tantalum, Solubility).

MLM-1245 **Field 18B**
CFSTI Prices: HC$2.00 MF$0.50
Mound Lab., Miamisburg, Ohio.
MOUND LABORATORY PROGRESS REPORT FOR FEBRUARY 1965,
by J. F. Eichelberger, G. R. Grove and L. V. Jones. 26 Feb 65, 26p
Contract AT (33-1)-GEN-53
Distribution: No limitation.

Descriptors: (*Radioactive isotopes, Scientific research), (*Isotope separation, Radioactive isotopes).

N65-16844 **Field 18D, 20F**
CFSTI Prices: HC$2.00 MF$0.50
North Carolina Univ., Chapel Hill.
THE OPTICS OF A COSMIC RAY DETECTION SYSTEM USING A GAS FILLED CERENKOV RADIATOR.
Masters thesis,
by R. S. Snyder. 1963, 45p
NASW59
NASA CR-51513
Distribution: No limitation.

Descriptors: (*Cosmic rays, Radiation measurement systems), (*Optics, Radiation measurement systems).

N65-24491 **Field 18H, 10C**
CFSTI Prices: HC$3.00 MF$0.75
Atomics International, Canoga Park, Calif.
THE EFFECTS OF RADIATION ON NICKEL-CADMIUM BATTERY ELECTRODES. I.
Final rept. for Jun 63-Apr 65,
by G. R. Argue, H. L. Recht, W. A. McCollum, andD. E. McKenzie. 15 Apr 65, 70p Rept. no. AI-65-66
Contracts JPL950514, NAS7 100
NASA CR-62796
Distribution: No limitation.

Descriptors: (*Electrodes, Radiation damage), (*Radiation damage, Alkaline cells).

N65-27373 **Field 18N, 18F, 18K**
CFSTI Prices: HC$1.00 MF$0.50
Lockheed-Georgia Co., Marietta. Georgia Nuclear Labs.
GAMMA SPECTRUM MEASUREMENTS, SNAP 8: RADIATION EFFECTS TEST PROGRAM, VOLUME I.
Sep 64, 22p
Contract OP367736
NASA CR-63600
Subcontracted to Aerojet General Corp., Azusa, Calif. Distribution: No limitation.

Descriptors: (*Gamma-ray spectra, Reactor shielding calculations), (*Reactor shielding calculations, Gammaray spectra).

N65-30698 **Field 18D, 20J**
CFSTI Prices: HC$1.00 MF$0.50
National Aeronautics and Space Administration, Greenbelt, Md. Goddard Space Flight Center.
THE DETERMINATION OF ABSOLUTE PHOTON FLUXES AND APPLICATIONS TO LABORATORY CALIBRATION PROCEDURES IN THE 100A TO 300A RANGE,
by D. H. Tomboulian. Aug 65, 8p NASA-TN-D-2917
Distribution: No limitation.

Descriptors: (*Photons, Radiation measurement systems), (*Radiation measurement systems, Photons).

NAA-SR-MEMO-10167 **Field 18L, 18I**
CFSTI Prices: HC$2.00 MF$0.50
Atomics International, Canoga Park, Calif.
PERMISSIBLE HYDROGEN LEVELS IN THE HNPF CONTROL ROD HELIUM SYSTEM,
by J. D. Perret. 18 Nov 64, 26p
Contract AT (11-1)-GEN-8
Distribution: No limitation.

Descriptors: (*Control rods, Helium), (*Helium, Impurities).

NAA-SR-MEMO-10695 **Field 18N, 18J**
CFSTI Prices: HC$1.00 MF$0.50
Atomics International, Canoga Park, Calif.
EXPERIMENTAL STRESS ANALYSIS OF SNAP-2 REACTOR-VESSEL TOP-HEAD,
by L. Goodman. 16 Nov 64, 23p
Contract AT-11-1-GEN-8
Distribution: No limitation.

Descriptors: (*Nuclear power plants, Spacecraft), (*Stresses, Reactor system components).

NAA-SR-MEMO-10720 **Field 18J**
CFSTI Prices: HC$1.00 MF$0.50
Atomics International, Canoga Park, Calif.
RE-EVALUATION AND STATISTICAL APPLICATION OF HOT CHANNEL FACTORS FOR THE PIQUA REACTOR,
by D. F. Hausknecht. 26 Mar 65, 23p
Contract AT (11-1)-GEN-8
Distribution: No limitation.

Descriptors: (*Reactor fuel cladding, Thermal properties), (*Organic cooled reactors, Reactor fuel cladding).

NAA-SR-10482 **Field 18J, 18N**
CFSTI Prices: HC$3.00 MF$0.50
Atomics International, Canoga Park, Calif.
RAPID PULSE HEATING OF MODIFIED ZIRCONIUMURANIUM HYDRIDES TO DESTRUCTION.
Final rept.,
by R. A. Finch. 25 Jul 65, 55p
Contract AT (11-1)-GEN-8
Distribution: No limitation.

Descriptors: (*Reactor fuels, Degradation), (*Uranium compounds, Hydrides), (*Zirconium, Hydrides).

Identifiers: Uranium hydrides, Zirconium hydrides, SNAP.

NAA-SR-10997 **Field 18I, 18N**
CFSTI Prices: HC$3.00 MF$0.75
Atomics International, Canoga Park, Calif.
DEVELOPMENT, ACCEPTANCE AND QUALIFICATION TESTING OF THE SNAP 10A EJECTABLE HEAT SHIELD,
by H. L. Sperow. 31 Aug 65, 69p
Contract AT (11-1)-GEN-8
Distribution: No limitation.

Descriptors: (*Auxiliary power plants, Reactor system components), (*Reactor system components, Auxiliary power plants).

NAA-SR-11375 **Field 18J**
CFSTI Prices: HC$2.00 MF$0.50
Atomics International, Canoga Park, Calif.
SECOND-CYCLE AIROX REPROCESSING AND PELLET REFABRICATING OF HIGHLY IRRADIATED URANIUM DIOXIDE,
by J. E. Bodine, J. Guon, and R. J. Sullivan. 31 Aug 65, 45p
Contract AT (11-1)-GEN-8
Distribution: No limitation.

Descriptors: (*Reactor fuel processing Oxidation-reduction reactions), (*Uranium compounds, Dioxides).

Identifiers: Uranous oxide.

NAA-SR-11389 **Field 18J**
CFSTI Prices: HC$3.00 MF$0.75
Atomics International, Canoga Park, Calif.
PYROCHEMICAL REPROCESSING OF UO2 BY AIROX.
Summary rept.,
by G. E. Brand and E. W. Murbach. 31 Aug 65, 65p
Contract AT (11-1)-GEN-8
Distribution: No limitation.

Descriptors: (*Uranium compounds, Dioxides), (*Reactor fuel processing, Uranium compounds).

Identifiers: Uranous oxide.

NYO-2767 **Field 18D, 6F**
CFSTI Prices: HC$3.00 MF$0.75
Tracer Lab., Inc., Waltham, Mass.
AN S02 MONITOR FOR AIR POLLUTION STUDIES: DESIGN OF THE INSTRUMENT AND FIELD TESTING.
Final rept.,
by Carlton O. Hommel, Richard L. Bersin, Alexander M. Filipov, and Frederick J. Brousaides. Aug 62, 80p
Contract AT (30-1)-2525
Includes preliminary evaluation of the tracemetric gas monitor for S02. Final rept. 23 Mar-3 May 62. Supplementary evaluation of the tracermetric gas monitor for S02, 23 Jun-22 Aug 62. Distribution: No limitation.

Descriptors: (*Air pollution, Monitors), (*Sulfur compounds, Dioxides).

Identifiers: Sulfur dioxide.

NYO-3421-1 **Field 18D, 9A**
CFSTI Prices: HC$2.00 MF$0.50
Radio Corp. of America. RCA Labs. Div., Princeton, N. J.
PHOTOMULTIPLIER INVESTIGATION.
Quarterly rept. no. 1, 15 Jun-15 Sep 64,
by H. M. Smith, R. Wasserman, and R. L. Rodgers. 29 Sep 64, 27p
Contract AT (30-1)-3421
Distribution: No limitation.

Descriptors: (*Photomultipliers, Radiation measurement systems), (*Radiation measurement systems, Photomultipliers).

ORNL-P-1108 **Field 18G, 18J**
CFSTI Prices: HC$1.00 MF$0.50
Oak Ridge National Lab., Tenn.
THE BEHAVIOR OF FISSION-GAS IN FUELS,
by R. M. Carroll. 1965, 29p CONF-650904-1
Contract W-7405-eng-26
Distribution: No limitation.

Descriptors: (*Fission product activity, Reactor fuels), (*Reactor fuels, Fission product activity).

ORNL-P-1287 **Field 18I, 18G**
CFSTI Prices: HC$2.00 MF$0.50
Oak Ridge National Lab., Tenn.
RELEASE OF FISSION PRODUCTS FROM REACTOR FUELS DURING TRANSIENT ACCIDENTS SIMULATED IN TREAT,
by G. W. Parker, R. A. Lorenz, and J. G. Wilhelm. 1964, 41p CONF-650407-8
Contract W-7405-eng-26
Presented at International Symposium on Fission Product Release and Transport under Accident Conditions, Oak Ridge, Tenn. Distribution: No limitation.

Descriptors: (*Fission products, Reactor accidents), (*Reactor accidents, Fission products), Reactor kinetics.

ORNL-P-1373 **Field 18A, 20I**
CFSTI Prices: HC$2.00 MF$0.50
Oak Ridge National Lab., Tenn.
PLASMA HEATING BY MEANS OF BEAM PLASMA INTERACTION AT OAK RIDGE NATIONAL LABORATORY,
by I. Alexeff, R. V. Neidigh, W. D. Jones, W. F. Reed, and W. L. Stirling. 1964, 40p CONF-650911-3
Contract W-7405-eng-26
Presented at the Conference on Plasma physics and Controlled Nuclear Fusion Research, (2nd) Abingdon, Berks., England. Distribution: No limitation.

Descriptors: (*Plasma medium, Heating), (*Electron beams, Plasma physics).

ORNL-TM-1147 **Field 18L, 18J, 18I**
CFSTI Prices: HC$1.00 MF$0.50
Oak Ridge National Lab., Tenn.
THE ECONOMIC INCENTIVE FOR THORIUM REACTOR DEVELOPMENT,
by James A. Lane. 2 Jun 65, 20p CONF-650615-2
Contract W-7405-eng-26
Prepared for presentation at IAEA Panel on Utilization of Thorium in Power Reactors, Vienna, 4-18 Jun 1965. Distribution: No limitation.

Descriptors: (*Thorium, Reactor fuels), (*Power reactors, Economics).

Patent 3,213,002 **Field 18J, 7A**
ELECTROLYTIC SEPARATION OF PLUTONIUM VALUES FROM URANIUM VALUES.
Patent assigned to AEC,
by Glen E. Benedict. 19 Oct 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Plutonium, Separation), (*Uranium, Separation), Salts, Electrolysis, Electrodes, Chlorides, Dioxides, Patents.

Identifiers: Fused salts.

The process is for separating plutonium from uranium in a fused salt electrolyte. An anode and cathode are placed in the melt and a D. C. current is passed between them to maintain a particular cathode current density and at a temperature of from 600 to 625 degrees C. The melt is then sparged with a gas mixture of chlorine and oxygen. The solids deposited on the cathode are then withdrawn.

Patent 3,213,032 **Field 18J**
PROCESS FOR SINTERING URANIUM NITRIDE WITH A SINTERING AID DEPRESSANT.
Patent assigned to AEC,
by Joseph P. Hammond. 19 Oct 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Reactor fuel processing, Sintering), (*Uranium compounds, Sintering), (*Sintering, Uranium compounds), Nitrides, Intermetallic compounds, Aluminum alloys, Beryllium alloys, Silicon alloys, Powders, Additives, Patents.

Identifiers: Uranium mononitride.

The uranium nitride is used as a fuel in nuclear reactors. A densified compact is prepared by uniformly mixing uranium nitride powder with an effective amount of uranium intermetallic compound. The mixture is pressed and sintered at from 1400 to 1800 degrees C. The resultant compacts reach the theoretical density of UN and are not decomposed during processing.

Patent 3,213,161 **Field 18J**
PROCESS FOR FORMING A URANIUM MONONITRIDEURANIUM DIOXIDE NUCLEAR FUEL.
Patent assigned to AEC,
by Richard A. Craig. 19 Oct 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Reactor fuel processing, Sintering), (*Uranium compounds, Sintering), (*Sintering, Uranium compounds), Nitrides, Dioxides, Powders, Density, Grain structures (Metallurgy), Tensile properties, Patents.

Identifiers: Uranium mononitride, Uranous oxide.

The nuclear fuel is made by mixing uranium mononitride and uranium dioxide powers, compacting the mixture in an inert atmosphere and sintering it at 2260 degrees C. The resultant compact has a higher density and less tendency to undergo grain growth at high-temperatures than ordinary UN. The fuel is characterized by its high strength and long service life.

Patent 3,215,606 **Field 18F, 18J**
NUCLEAR REACTOR WITH EMERGENCY COOLANT CROSS FLOW.
Patent assigned to AEC,
by Austin G. Silvester. 2 Nov 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Reactor safety systems, Reactor coolants), (*Reactor fuel elements, Configuration), Reactor cores, Roactor fuel rods, Thermal shock, Reactor reactivity, Reactor control, Patents.

A fuel element configuration is provided which increases the margin for safe operation of a nuclear reactor during a sudden increase in activity. The structure is such that the heat contained in the reactor coolant is distributed through the core structure before reaching the reactor vessel containing the core. The coolant flows in selected regions longitudinally and transversely of the fuel rods.

Patent 3,215,607 **Field 18J, 18L**
MULTI-REGION NEU.RONIC FUEL ELEMENT.
Patent assigned to AEC,
by Mack E. Lackey. 2 Nov 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Reactor fuel elements, Power reactors), Thermal properties, Reactor fuel cladding, Reactor cores, Uranium, Reactor fuel processing, Patents.

The fuel element for a nuclear reactor includes a jacket of non-fissionable material surrounding a uranium bearing core having uniform chemical, physical and thermal properties throughout. The nuclear properties of the core region vary, however, in that the fissionable uranium-235 isotope is in greater abundance in the core region adjacent to the jacket than throughout the remainder of the uranium bearing core.

Patent 3,215,608 **Field 18J, 18I, 13I**
NUCLEAR REACTOR CORE CLAMPING SYSTEM.
Patent assigned to AEC,
by Ralph W. Guenther. 2 Nov 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Reactor cores, Clamps), Reactor fuel elements, Reactor reflectors, Reactor control, Fast reactors, Patents.

The clamping system is for the core of a nuclear reactor having a neutron reflector control system. The clamping system is situated between the core and the reflector system and is of such a size to permit closer spacing of the reflector system to the core.

Patent 3,216,903 **Field 18I, 18J**
MOUNTING OF FUEL TUBE IN REACTOR SHIELDING.
Patent assigned to AEC,
by Wilbur L. Bunch. 9 Nov 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Reactor fuel elements, Mounting brackets), (*Reactor shielding materials, Reactor fuel elements), Nuclear reactors, Patents.

An arrangement is disclosed for mounting a fuel tube in a reactor shield through which the tube passes on its way to the reactor core. The mounting allows for differential expansion of the core and shield while providing a radiation seal between the tube and the shield.

PB-168 621 **Field 18J, 14A, 11F**
CFSTI Prices: HC$3.00 MF$0.75
Commissariat a l'Energie Atomique, Paris (France).
OPTIMISATION DES CYCLES DE COMBUSTIBLES: VALEURS MARGINALES DES PERTES (Optimization of Fuel Cycles: Marginal Loss Values),
by Jacques Gaussens, Bernard de Lasteyrie and Jeam Doumerc. Aug 65, 67p CEA-R-2866
French-English bilingual edition. Distribution: No limitation.

Descriptors: (*Reactor fuel processing, Optimization), (*Uranium, Refining (Metallurgy)), Cost effectiveness, Reactor fuel rods, Economics, Industrial production, France.

The problem of recovering losses which is discussed relates to the chain of operations from the uranium concentrate to the introduction of the fuel elements into a reactor. The fuels concerned are those of the natural uranium-graphite-gas system. The various stages in their manufacture, from the concentrate to the finished fuel cost between 20 and 30 $/kg U, while the price of the concentrate itself is about 20 $/kg U. The losses will thus have economic consequences defined by an intermediate figure between 20 and 40 or 50 $ per kg U, which amply justifies precise analysis of the economic conditions for their recovery. The report on studies in respect of natural uranium losses can be easily transposed to the case of enriched uranium also.

PB-168 624 **Field 18J, 18D, 18F**
CFSTI Prices: HC$4.00 MF$1.00
Commissariat a l'Enegie Atomique, Saclay (France). Centre d'Etudes Nucleaires.
LA DETECTION DES RUPTURES DE GAINE DANS LES PILES NUCLAIRES REFROIDIES PAR GAZ (Can-Rupture Detection in Gas-Cooled Nuclear Reactors),
by Andre Roguin. 2 Jun 64, 156p CEA-R-2784
Rept. in French; Summary in English. Distribution: No limitation.

Descriptors: (*Gas-cooled reactors, Reactor fuel cladding), (*Reactor fuel cladding, Rupture), Reactor safety systems, Power reactors, Radiation measurement systems, Fission products, Reactor coolants, France.

Can-rupture detection (DRG) is one important aspect of pile safety, more particularly so in the case of gascooled reactors. A rapid and sure detection constitutes also an improvement as far as the efficiency of electricityproducing nuclear power stations are concerned. Among the numerous can-rupture detection methods, that based on the measurement of the concentration of short-lived fission gases in the heat-carrying fluid has proved to be the most sensitive and the most rapid. A systematic study of detectors based on the electrostatic collection of the daughter products of fission gases has been undertaken with a view to equiping the reactors EL 2, G 3, EDF 1, EDF 2 and EDF 3, the gas loops of PEGASE and EL 4. The different parameters are studied in detail in order to obtain a maximum sensitivity and to make it possible to construct detection devices having the maximum operational reliability and requiring the minimum maintenance. The primary applications of these devices are examined in the case of the abovementioned reactors. (Author)

PNE-5003 **Field 18C, 13C**
CFSTI Prices: HC$0.75 MF$0.75
Army Engineer Waterways Experiment Station, Vicksburg, Miss.
INVESTIGATION OF MANUFACTURE OF AGGREGATE AND RIPRAP BY NUCLEAR MEANS,
by J. M. Polatty, B. J. Houston, R. L. Stowe andD. C. Banks. Feb 65, 78p
Contract AT-29-2-752
Distribution: No limitation.

Descriptors: (*Nuclear industrial applications, Material separation), (*Fragmentation, Nuclear industrial applications).

RFP-507 **Field 18J, 11F**
CFSTI Prices: HC$3.00 MF$0.75
Rocky Flats Div., Dow Chemical Co., Golden, Calif.
A NUCLEAR MATERIALS MANAGEMENT CONTROL SYSTEM FOR URANIUM REACTOR FUEL ELEMENT FABRICATION (A HYPOTHETICAL CASE),
by L. D. Hazelton. 1965, 59p CONF-650803-4, SM-67/28
Contract AT (29-1)-1106
Presented at the IAEA Symposium on Nuclear Materials Management, Vienna. Distribution: No limitation.

Descriptors: (*Uranium, Reactor fuel elements), (*Reactor fuel elements, Uranium).

RL-SEP-466 **Field 18J**
CFSTI Prices: HC$1.00 MF$0.50
Hanford Atomic Products Operation, Richland, Wash.
SUPPLEMENTAL CRITICAL MASS AND CHEMICAL HAZARDS CONTROL SPECIFICATIONS HANDLING AND STORAGE OF SHIPPINGPORT REACTOR BLANKET FUEL AT T PLANT,
by G. L. Hanson and H. C. Rathvon. 26 Apr 65, 4p
Contract AT (45-1)-1350
Distribution: No limitation.

Descriptors: (*Reactor fuels, Handling), (*Handling, Reactor fuels), Storage, Specification, Hazards, Control.

SRO-116 **Field 18L**
CFSTI Prices: HC$1.00 MF$0.50
Savannah River Operations Office (AEC). Aiken, S. C.
HEAVY WATER POWER REACTOR PROGRAM.
Monthly progress rept.
May 65, 15p
Distribution: No limitation.

Descriptors: (*Power reactors, Heavy water reactors), (*Organic cooled reactors, Power reactors).

SRO-117 **Field 18L**
CFSTI Prices: HC$1.00 MF$0.50
Savannah River Operations Office (AEC). Aiken, S. C.
HEAVY WATER POWER REACTOR PROGRAM.
Monthly progress rept.
Jun 65, 12p
Distribution: No limitation.

Descriptors: (*Power reactors, Heavy water reactors), (*Organic cooled reactors, Power reactors).

TID-21475 **Field 18J**
CFSTI Prices: HC$3.00 MF$0.75
Southwest Research Inst., San Antonio, Tex. Dept. of Electronics and Electrical Engineering.
NONDESTRUCTIVE ASSAY OF NUCLEAR FUELS.
Final rept.,
by Warren J. McGonnagle, Raymond R. Nydegger, andDemetrios L. Basdekas. 26 May 64, 84p
Contract AT (11-1)-1321
Distribution: No limitation.

Descriptors: (*Reactor fuels, Nondestructive testing).

TID-22034 **Field 18J, 7A**
CFSTI Prices: HC$3.00 MF$0.75
Tracerlab, Richmond, Calif.
STUDY OF THE USE OF ELECTRONICALLY EXCITED OXYGEN FOR THE DECOMPOSITION OF REACTOR MATERIALS,
by C. E. Gleit, W. D. Holland, and R. L. Bersin.
30 Nov 64, 62p
Contract W-7405-eng-26
Distribution: No limitation.

Descriptors: (*Reactor fuel elements, Oxidation), (*Oxygen, Excitation).

UCRL-16190 **Field 18D**
CFSTI Prices: HC$1.00 MF$0.50
Lawrence Radiation Lab., Univ. of California, Berkeley.
LITHIUM-DRIFTED SILICON RADIATION DETECTOR PRODUCTION PROCESS,
by Robert P. Lothrop and Harry E. Smith. 11 Jun 65, 11p
Contract W-7405-eng-48
Distribution: No limitation.

Descriptors: (*Radiation measurement systems, Production), (*Silicon, Radiation measurement systems).

WAPD-T-1673 **Field 18K**
CFSTI Prices: HC$1.00 MF$0.50
Bettis Atomic Power Lab., Pittsburgh, Pa.
NONCONVERGENCE OF STEADY-STATE XENON CALCULATIONS,
by S. G. Margolis. Jan 64, 8p CONF-446-85
Contract AT (11-1)-GEN-14
Presented at American Nuclear Society Annual Meeting (10th), Philadelphia, June 1964. Distribution: No limitation.

Descriptors: (*Xenon, Distribution theory), (*Neutron flux, Xenon).

WCAP-3385-4 **Field 18J, 18I**
CFSTI Prices: HC$3.00 MF$0.75
Westinghouse Electric Corp., Pittsburgh, Pa. Atomic Power Div.
SAXTON PLUTONIUM PROGRAM.
Quarterly progress rept. for period ending 30 Jun 65.
Jul 65, 92p EURAEC-1420
Contract AT (30-1)-3385
Distribution: No limitation.

Descriptors: (*Plutonium, Reactor fuels), (*Reactor fuels, Plutonium).

WCAP-5482 **Field 18D**
CFSTI Prices: HC$1.00 MF$0.50
Westinghouse Electric Corp., Pittsburgh, Pa.
SILICON CARBIDE HIGH TEMPERATURE NEUTRON DETECTORS FOR REACTOR INSTRUMENTATION,
by R. R. Ferber and G. N. Hamilton. 1964, 5p CONF-650602-6
Contract AT (30-1)-2827
Presented at American Nuclear Society 11th Annual Meeting, Gatlinburg, Tenn. Distribution: No limitation.

Descriptors: (*Neutron detectors, Silicon compounds), (*Silicon compounds, Carbides), Radiation measurement systems.

WCAP-5494 **Field 18K, 18I**
CFSTI Prices: HC$1.00 MF$0.50
Westinghouse Electric Corp., Pittsburgh, Pa. Atomic Power Div.
FUEL BURNUP IN HETEROGENEOUS REACTOR LATTICES,
by C. G. Poncelet. 1964, 4p CONF-650692-4
Contract AT (30-1)-3017
Presented at American Nuclear Society 11th Annual Meeting, Gatlinburg, Tenn. Distribution: No limitation.

Descriptors: (*Heterogeneous reactors, Fuel burn up), (*Fuel burn up, Heterogeneous reactors).

Y-1491 **Field 18I, 18L**
CFSTI Prices: HC$2.00 MF$0.50
Union Carbide Corp., Oak Ridge, Tenn. Y-12 Plant.
REVIEW OF HYDRAULIC PROBLEMS ON THE BONUS REACTOR PRESSURE CONTROL SYSTEM,
by I. G. Speas, J. S. Cobb, and S. E. Groothuis. 14 Jun 65, 29p
Contract W-7405-eng-26
Distribution: No limitation.

Descriptors: (*Reactor control, Pressure), (*Hydraulic servomechanisms, Reactor control).

Identifiers: BONUS reactor.

19. ORDNANCE

AD-458 073 **Field 19A**
CFSTI Price: HC$2.00
Genistron, Inc., College Park, Md. Applied Research Div.
DETERMINATION OF RESPONSES OF PROTECTED AND UNPROTECTED ELECTRIC INITIATORS TO ELECTRICAL STIMULI.
Special technical rept. on Protective Devices: Radio Interference Guard, Coaxial Single-Pole Relay; Low Bandpass Transformer.
27 Jan 65, 50p Rept. no. 2400-5754-2
Contract N1788290
Distribution: No limitation.

Descriptors: (*Explosives initiators, Electromagnetic shielding), (*Electromagnetic shielding, Explosives initiators), Electromagnetic fields, Electromagnetic waves, Effectiveness, Radiofrequency, Electric relays, Transformers, Attenuation, Electrical impedance.

The effectiveness of each of three types of electroexplosive inline protective devices against electromagnetic fields was measured over the frequency range from 100 cps to 10 gc. The effectiveness of each device is reported in terms of power attenuation, 'corrected' power attenuation and minimum possible insertion loss. Directly-measured data from which these evaluation parameters were computed is reported in graphic form. The devices evaluated were: (1) Bendix Radio Interference Guard, (RIG) (2) Elgin Lowpass Coaxial Relay, (LCR) (3) Weston Low Bandpass Transformer, (LBT). (Author)

AD-460 450 **Field 19A**
CFSTI Price: HC$3.00
Genistron, Inc., College Park, Md. Applied Research Div.
DETERMINATION OF RESPONSES OF PROTECTED AND UNPROTECTED ELECTRIC INITIATORS TO ELECTRICAL STIMULI.
Special technical rept. on Metavac, Incorporated Ferrite-Ceramic RF Attenuator Protective Device.
26 Feb 65, 90p Rept. no. 2400-5754-3
Contract N178-8290
Distribution: No limitation.

Descriptors: (*Attenuators, Electromagnetic shielding), (*Electromagnetic shielding, Explosives initiators), (*Explosives initiators, Electromagnetic shielding), Radiofrequency, Effectiveness, Ferrites, Ceramic materials, Electromagnetic fields, Electrical impedance.

The effectiveness against electromagnetic fields of ten samples of Metavac ferrite-ceramic RF attenuators, intended for application as in-line protective devices for electroexplosive initiators, was measured. The measurements were performed over the frequency range from 100 cps through 10 gc. Quantities directly measured were input impedance, load impedance of the connected inert MK-1 squib (Z sub L), transfer impedance (Z sub p) and/or 'Degree of Protection' (DP - 20 log V sub i/V sub p.) These data were used to compute the evaluation parameters Power Attenuation (PA), 'Corrected Power Attenuation' (PAc) and minimum possible Insertion Loss (H sub r), which are presented in graphic form. The time delay of all samples was found to be less than the 0.2 microsecond resolution available in the instrumentation. (Author)

AD-462 033 **Field 19A**
CFSTI Price: HC$3.00
Genistron, Inc., College Park, Md. Applied Research Div.
DETERMINATION OF RESPONSES OF PRO-

798-319 O - 66 - 15

TECTED AND UNPROTECTED ELECTRIC INITIATORS TO ELECTRICAL STIMULI.
Special technical rept. on Spark Gap Squibs.
12 Mar 65, 78p Rept. no. 2400-5754-4
Contract N178-8290
Distribution: No limitation.

Descriptors: (*Explosive initiators, Electromagnetic shielding), Effectiveness, Electromagnetic fields, Radiofrequency, Radiofrequency power, Electric igniters, Electrical impedance.

The effectiveness of Spark Gap Squibs (SGS) against radio frequency electromagnetic fields was studied over the frequency range 100 cps to 10 gc. The data obtained on effectiveness is limited in accuracy by difficulties in power measurement imposed by the squib construction, and by lack of availability of RF power sources of sufficient capacity over the desired frequency range. However, qualitative results are encouraging, indicating a high degree of immunity for the SGS against RF electromagnetic fields.

N65-24359 **Field 19F**
CFSTI Prices: HC$3.00 MF$0.75
MB Associates, San Ramon, Calif.
FEASIBILITY STUDY FOR DEVELOPMENT OF A HYPERVELOCITY GUN.
Final rept.,
by D. E. Brast and D. R. Sawle. May 65, 87p
MB-R-65/40
Contract NAS8 11204
NASA CR-62876
Microfilmed from best available copy. Distribution: No limitation.

Descriptors: (*Hypervelocity guns, Feasibility studies).

Patent 3,212,208 **Field 19F**
AUGMENTOR AND SABOT STRIPPER FOR HYPERVELOCITY LIGHT GAS GUN.
Patent assigned to Navy,
by Mario A. Persechino and Harold V. Schlemmer
19 Oct 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Hypervelocity guns, Gun components), Sabot projectiles, Hypervelocity projectiles, Design, Patents.

The hypervelocity augmentor and sabot stripper is a two-stage device designed to eliminate the sabot and to provide velocity augmentation to a projectile fired from a light-gas gun by utilizing the kinetic energy in the carrier or sabot. The hypervelocity augmentor and sabot stripper is secured to the end of a gun muzzle by use of screw threads or a suitable bolt and nut or screw arrangement.

Patent 3,212,469 **Field 19H, 13E**
TORPEDO RETRIEVING DEVICE.
Patent assigned to Navy,
by Robert E. Kershaw, Clinton H. Fitzgerald and Edgar Ulrich. 19 Oct 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Torpedoes, Recovery), (*Suspension devices, Disconnect fittings), Patents, Handling, Hydraulic actuators.

The device is used for retrieving an acoustical marine torpedo which has an acoustically instrumented nose. The torpedo has a highly polished surface. The device is used to recover a torpedo after a test run. It includes a clamping band which extends around the circumference of the torpedo and four flexible bands which extend from the band to a circular lifting plate shaped to fit the forward end of the torpedo. The device carries its hydraulic power source and actuator.

Patent 3,215,040 **Field 19G**
ADAPTER RAIL.
Patent assigned to Navy,
by Robert L. Kossan, Robert E. Carlberg, Louis H. Weber, Richard H. Allen and Palmer G. Wermager. 2 Nov 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Guided missile launchers, Adapters), Shipborne, Patents.

The adapter rail adapts a given missile for use in a launching system designed to launch a different missile. The launcher is designed for shipboard use. Apparatus is disclosed for arming a missile secured on an adapter rail and for disconnecting the umbilical cord from the missile as it is launched. A forward and aft snubber hold the missile on the rail. A novel torsion bar and torque tube arrangement is provided for opening the snubbers for launching of the missile.

Patent 3,216,354 **Field 19A**
LAND MINE.
Patent assigned to Army,
by Marshall P. Bearce. 9 Nov 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Land mines, Design), Effectiveness, Patents.

The mine is concealed and camouflaged by being buried beneath the surface of the earth and is actuated upon contact with a vehicle by a fuse attached to the mine. The charge is shaped for armor-piercing. A small preliminary or clearing charge is provided just below the cover of the mine. This charge is ignited a short time ahead of the high explosive charge, to clear away the earth covering the mine to allow full unobstructed effect of the main charge.

PNE-502F **Field 19D, 18C**
CFSTI Prices: HC$1.40 MF$1.00
Army Engineer Nuclear Cratering Group, Livermore, Calif.
CRATER MEASUREMENTS.
Final rept.,
by Joseph L. Spruill and Roger A. Paul. Mar 65, 128p
Rept. on Proj. pre-SCHOONER, Nevada test site, Feb 1964. Distribution: No limitation.

Descriptors: (*Cratering, Underground explosions), (*Underground explosions, Cratering).

20. PHYSICS

AD-462 336 **Field 20D**
CFSTI Price: HC$3.00
Johns Hopkins Univ., Silver Spring, Md. Applied Physics Lab.
PERIODIC BOUNDARY LAYER FLOWS OVER A FLAT PLATE. PART II.
Technical memo.,
by V. O'Brien and F. E. Logan. Feb 65, 94p
TG-658
Contract NOw-62-0604-c
See also AD-607 065. Distribution: No limitation.

Descriptors: (*Laminar boundary layer, Flat plate models), (*Flat plate models, Oscillation), Boundary layer, Turbulent boundary layer, Harmonic oscillators, Frequency, Viscosity, Three-dimensional flow, Separation, Water, Oils, Incompressible flow, Rotation.

A continuation is presented of the study of the periodic flows induced by the motion of a flat plate oscillating parallel to a stationary one. The parallel laminar flow theory number was verified as a similarity parameter by varying the oscillation frequency, the kinematic viscosity, and the plate separation distance. The oscillating plate generates horizontal pressure gradients within the flow so the flow pattern is not that of the classic zero pressure gradient theory. Measurements and displacements predicted by theory show good agreement. (Author)

BNL-325 (2nd ed.) **Field 20H, 18K**
CFSTI Prices: HC$3.00 MF$1.50
Brookhaven National Lab., Upton, N. Y.
NEUTRON CROSS SECTIONS. VOLUME III. Z EQUALS 88 TO 98,
by John R. Stehn, Murrey D. Goldberg, Renate Wiener-Chasman, Said F. Mughabghab and Victoria M. May. Feb 65, 282p
Contract AT (30-2)-GEN-16
Distribution: No limitation.

Descriptors: (*Neutron cross sections, Reactor physics).

BNL-9091 **Field 20G, 20H**
CFSTI Prices: HC$2.00 MF$0.50
Brookhaven National Lab., Upton, N. Y.
THE MANY-BODY PROBLEM IN ACCELERATORS DUE TO HIGH BEAM INTENSITY. PART I. QUALITATIVE OUTLINE AND SOME QUANTITATIVE ASPECTS OF THE THEORY.
Internal rept.,
by A. M. Sayied. 24 Jul 64, 33p
Contract AT (30-2)-GEN-16
Distribution: No limitation.

Descriptors: (*Particle accelerators, Particle beams), (*Particle beams, N-body problem).

BNL-9127 **Field 20L, 18H**
CFSTI Prices: HC$1.00 MF$0.50
Brookhaven National Lab., Upton, N. Y.
EXPERIMENTAL STUDIES OF SOLID STATE PROCESSES INFLUENCED BY IRRADIATION,
by A. C. Damask. 1964, 25p CONF-650904-2
Contract AT-30-2-GEN-16
Prepared for presentation at Symposium on Radiation Effects, Asheville, N. C., 8-10 Sep 1965. Prepared in cooperation with Pitman-Dunn Research Inst., Frankford Arsenal, Philadelphia, Pa. Distribution: No limitation.

Descriptors: (*Solid state physics, Radiation damage), (*Radiation damage, Solid state physics).

BNL-9213 **Field 20G, 20H**
CFSTI Prices: HC$2.00 MF$0.50
Brookhaven National Lab., Upton, N. Y.
THE DESIGN OF A MEDIUM-ENERGY PION BEAM (4-16 GEV/C) FOR THE BROOKHAVEN A. G. S.,
by A. L. Read and R. Rubinstein. 1965, 28p
Contract AT (30-2)-GEN-16
Prepared in cooperation with Cornell Univ., Ithaca, N. Y. Lab. of Nuclear Studies. Distribution: No limitation.

Descriptors: (*Synchrotrons, Alternating gradient focusing accelerators), (*Pions, Particle beams).

BNWL-102 **Field 20M, 11**
CFSTI Prices: HC$1.00 MF$0.50
Battelle-Northwest, Richland, Wash. Pacific Northwest Lab.
THERMAL STUDIES. HASTELLOY X METALLIC INSULATION,
by J. P. Hickerson. Aug 65, 11p
Contract AT (45-1)-1830
Distribution: No limitation.

Descriptors: (*Thermal insulation, Test reactors), (*Test reactors, Reactor materials).

BNWL-74 **Field 20M, 4B**
CFSTI Prices: HC$2.00 MF$0.50
Battelle-Northwest, Richland, Wash. Pacific Northwest Lab.
MIDAS COMPUTATION OF WATERDROP EVAPORATION,
by R. J. Engelmann. Jul 65, 35p

Contract AT (45-1)-1830
Distribution: No limitation.

Descriptors: (*Evaporation, Mathematical analysis), (*Drops, Evaporation).

CALT-221-7 **Field 20B, 20F**
CFSTI Prices: HC$2.00 MF$0.50
Keck (W. M.) Lab. of Engineering Materials. California Inst. of Tech., Pasadena.
RELATIVE INTENSITIES OF X-RAY REFLECTIONS OF VARIOUS ORDERS FOR TEN CRYSTAL MONOCHROMATORS.
Technical rept. no. 32,
by Pol Duwez. Jan 65, 26p
Contract AT (04-3)-221
Distribution: No limitation.

Descriptors: (*X-ray diffraction analysis, Monochromatic light), (*Crystals, X-ray diffraction analysis).

CALT-68-25 **Field 20H, 20J**
CFSTI Prices: HC$1.00 MF$0.50
California Univ., Riverside.
REGGE TRAJECTORIES VS. VANISHING RENORMALIZATION CONSTANTS AS DYNAMICAL CRITERIA,
by P. E. Kaus and F. Zachariasen. Jan 65, 18p
Contract AT (11-1)-68
Prepared in cooperation with California Inst. of Tech., Pasadena. Distribution: No limitation.

Descriptors: (*Particle trajectories, Field theory), (*Field theory, Elementary particles).

Identifiers: Bootstrap hypothesis.

CALT-68-28 **Field 20H, 20J**
CFSTI Prices: HC$1.00 MF$0.50
California Inst. of Tech., Pasadena.
WEAK AND ELECTROMAGNETIC CURRENTS AND STRONG INTERACTIONS SYMMETRIES IN THE BOOTSTRAP PROGRAM,
by Roger Dashen. 1964, 23p CONF-650106-7
Contract AT (11-1)-68
Presented at Conference on Symmetry Principles at High Energy, Coral Gables, Fla. Distribution: No limitation.

Descriptors: (*Nuclear reactions, Nuclear models), (*Elementary particles, Field theory).

Identifiers: Bootstrap hypothesis.

CALT-68-38 **Field 20H, 12A**
CFSTI Prices: HC$1.00 MF$0.50
California Inst. of Tech., Pasadena.
SERIES OF HADRON ENERGY LEVELS AS REPRESENTATIONS OF NON-COMPACT GROUPS,
by Yossef Dothan, Murray Gell-Mann, and Yuval Neeman. May 65, 11p
Contract AT (11-1)-68
Distribution: No limitation.

Descriptors: (*Nuclear energy levels, Series), (*Groups (Mathematics), Quantum mechanics).

CEAL-1014 **Field 20H**
CFSTI Prices: HC$1.00 MF$0.50
Cambridge Electron Accelerator, Mass.
HIGH-ENERGY PHOTONS FROM COMPTON SCATTERING OF LIGHT ON 6.0 GEV ELECTRONS,
by C. Bemporad, R. H. Milburn and N. Tanaka. 30 Jan 65, 18p
Contract AT (30-1)-2076
Distribution: No limitation.

Descriptors: (*Compton scattering, Electrons), (*Photons, Compton scattering).

CEAL-1018 **Field 20G**
CFSTI Prices: HC$1.00 MF$0.50
Cambridge Electron Accelerator, Mass.
A 475.76 MH (Z) LINAC CHOPPER,
by Gustav-Adolf Voss and Gilbert L. Nicholls. 29 Mar 65, 16p
Contract AT (30-1)-2076
Distribution: No limitation.

Descriptors: (*Linear accelerators, Particle accelerator components), (*Particle accelerator components, Cavity resonators).

CONF-650410-1 **Field 20H, 12A**
CFSTI Prices: HC$1.00 MF$0.50
Knolls Atomic Power Lab., Schenectady, N. Y.
COMBINED R-FUNCTION AND OPTICAL POTENTIAL FITTING FORMULA FOR FAST NEUTRON CROSS SECTIONS,
by E. Leo Slaggie. 1964, 9p
Contract W-31-109-eng-52
Prepared for presentation at American Physical Society, Washington, D. C., 26-29 Apr 1965. Distribution: No limitation.

Descriptors: (*Neutron scattering, Fast neutrons), (*Potential scattering, Neutron cross sections).

CONF-650524-1 **Field 20H**
CFSTI Prices: HC$1.00 MF$0.50
Knolls Atomic Power Lab., Schenectady, N. Y.
NEUTRON SCATTERING FROM NON-SPHERICAL NUCLEI,
by C. Dunford and J. T. Reynolds. Apr 65, 6p
Contract W-31-109-eng-52
Presented at European Nuclear Energy Agency and Atomic Energy Commission Seminar, Upton, N. Y. Distribution: No limitation.

Descriptors: (*Neutron scattering, Neutron cross sections), (*Nuclear models, Neutron scattering).

COO-1198-192 **Field 20B, 20H**
CFSTI Prices: HC$4.00 MF$0.75
Illinois Univ., Urbana. Dept. of Physics.
ELECTRON-NUCLEAR DOUBLE RESONANCE STUDY OF Z 1-CENTERS IN POTASSIUM CHLORIDE.
Doctoral thesis,
by James Carr Bushnell. Jul 64, 102p
Contract AT (11-1)-1198
Submitted to Univ. of Illinois 1964. Distribution: No limitation.

Descriptors: (*Color centers, Resonance absorption), (*Resonance absorption, Electrons).

COO-881-43 **Field 20H**
CFSTI Prices: HC$1.00 MF$0.50
Wisconsin Univ., Madison. Dept. of Physics.
DECAYS OF THE ETA MESON,
by M. Foster, M. Peters, R. Hartung, R. Matsen, and M. Good. Dec 64, 17p CONF-641021-1
Contract AT (11-1)-881
Prepared for presentation at National Academy of Sciences, Autum Meeting, Madison, Wis. Prepared in cooperation with Purdue Univ., Lafayette, Ind. Distribution: No limitation.

Descriptors: (*Meson reactions, Decay schemes).

CU-1932-240 **Field 20H**
CFSTI Prices: HC$1.00 MF$0.50
Nevis Labs., Columbia Univ., Irvington-on-Hudson, N. Y.
THE ONE PION EXCHANGE MODEL AND AN ATTEMPT TO MEASURE THE SPIN OF THE f (ZERO),
by N. Gelfand and G. Lutjens. May 65, 17p
NEVIS-134
Contract AT (30-1)-1932
Distribution: No limitation.

Descriptors: (*Nuclear models, Pions), (*Nuclear spins, Meson reactions).

GEAP-4782 **Field 20H**
CFSTI Prices: HC$1.00 MF$0.50
General Electric Co., San Jose, Calif. Atomic Power Equipment Dept.
TRANSPORT EQUIVALENT DIFFUSION THEORY.
Quarterly progress rept. no. 3, 1 Oct-31 Dec 64,
by G. H. Kear. 11 Jan 65, 18p EURAEC-1315
Contract AT (04-3)-189
Distribution: No limitation.

Descriptors: (*Neutron transport theory, Diffusion).

GEAP-4844 **Field 20D**
CFSTI Prices: HC$3.00 MF$0.75
General Electric Co., San Jose, Calif. Atomic Power Equipment Dept.
A PROGRAM OF TWO-PHASE FLOW INVESTIGATION.
Quarterly rept. no. 8, Jan-Mar 65,
by G. Bijwaard, F. W. Staub, and N. Zuber. 10 Apr 65, 73p EURAEC-1386
Contract AT (04-3)-189
Distribution: No limitation.

Descriptors: (*Two-phase flow, Heat transfer).

HUX-2752-9 **Field 20H**
CFSTI Prices: HC$4.00 MF$1.00
Harvard Univ., Cambridge, Mass. Dept. of Physics.
ON THE ELECTROMAGNETIC FORM FACTORS OF THE NEUTRON.
Doctoral thesis,
by John Ray Dunning, Jr. Nov 64, 140p
Contract AT (30-1)-2752
Submitted to Harvard Univ., Cambridge, Mass. Dept of Physics. Distribution: No limitation.

Descriptors: (*Neutrons, Electromagnetism).

IDO-17016 **Field 20H, 9B**
CFSTI Prices: HC$3.00 MF$0.75
Phillips Petroleum Co., Idaho Falls, Idaho. Atomic Energy Div.
A NONLINEAR LEAST-SQUARE PROGRAM FOR THE DETERMINATION OF PARAMETERS OF PHOTOPEAKS BY THE USE OF A MODIFIED-GAUSSIAN FUNCTION,
by Marie Putnam, R. G. Helmer, D. H. Gipson, and R. L. Heath. Aug 65, 88p
Contract AT (10-1)-205
Distribution: No limitation.

Descriptors: (*Gamma-ray spectra, Curve fitting), (*Curve fitting, Least squares method), (*Programming (Computers), Gamma-ray spectra).

IS-T-15 **Field 20L, 11F**
CFSTI Prices: HC$3.00 MF$0.50
Ames Lab., Iowa State Univ. of Science and Tech.
SOLID SOLUBILITY OF MAGNESIUM IN THE CLOSEPACKED MODIFICATIONS OF SOME RARE-EARTH METALS.
Master's thesis,
by Robert Roderick Joseph. May 65, 52p
Contract W-7405-eng-82
Distribution: No limitation.

Descriptors: (*Magnesium, Solubility), (*Rare earth elements, Solvent action).

IS-T-16 **Field 20B, 11F**
CFSTI Prices: HC$3.00 MF$0.75
Ames Lab., Iowa State Univ. of Science and Tech.
SINGLE CRYSTAL ELASTIC CONSTANTS OF LEADTHALLIUM ALLOYS.
Doctoral thesis,
by Marion Laverne Shepard. May 65, 74p
Contract W-7405-eng-82
Distribution: No limitation.

Descriptors: (*Lead alloys, Thallium alloys), (*Single crystals, Elasticity).

IS-1137 **Field 20M**
CFSTI Prices: HC$3.00 MF$0.50
Ames Lab., Iowa State Univ. of Science and Tech.
PREDICTION OF PEAK HEAT FLUX IN BOILING HEAT TRANSFER,
by Bernard P. Breen and George Burnet. 21 Apr 65, 26p CONF-650905-1
Contract W-7405-eng-42
Prepared for oral presentation at AICHE Symposia, Minneapolis, Minn., 26-29 Sep 1965. Distribution: No limitation.

Descriptors: (*Heat transfer, Boiling), (*Heat flux, Mathematical prediction).

IS-1154 **Field 20L, 20M, 7D**
CFSTI Prices: HC$1.00 MF$0.50
Iowa State Univ. of Science and Technology, Ames. Inst. for Atomic Research.
EQUATION OF STATE OF SIMPLE SOLIDS,
by C. A. Swenson. 1965, 14p CONF-650423-1
Contract W-7405-eng-42
Presented at International Conference on Physics of Solids and High Pressures, Tucson, Ariz., 12-21 Apr 1965. Distribution: No limitation.

Descriptors: (*Equations of state, Solids), (*Alkali metals, Equations of state), (*Solidified gases, Equations of state).

IS-1214 **Field 20H**
CFSTI Prices: HC$2.00 MF$0.50
Ames Lab., Iowa State Univ. of Science and Tech.
PHASE SPACE CONSIDERATIONS FOR THREEPARTICLE AND FOUR-PARTICLE FINAL STATES,
by Per Nyborg, Hi Sung Song, William J. Kernan, and Roland H. Good, Jr. Jul 65, 43p
Contract W-7405-eng-82
Distribution: No limitation.

Descriptors: (*Elementary particles, Nuclear reactions).

LA-DC-6779 **Field 20G**
CFSTI Prices: HC$1.00 MF$0.50
Los Alamos Scientific Lab., Univ of California, N. Mex.
DESIGN, CONSTRUCTION, AND TESTING OF RF STRUCTURES FOR A PROTON LINEAR ACCELERATOR,
by E. A. Knapp. 1964, 25p CONF-650306-40
Contract W-7405-eng-36
Prepared for presentation at Particle Accelerator Conference, Washington, D. C. Distribution: No limitation.

Descriptors: (*Proton accelerators, Radiofrequency), (*Linear accelerators, Design), Tests, Construction.

LA-DC-6874 **Field 20G**
CFSTI Prices: HC$1.00 MF$0.50
Los Alamos Scientific Lab., Univ. of California, N. Mex.
ELECTRICAL BEHAVIOR OF LONG LINAC TANKS AND A NEW TANK COUPLING SCHEME,
by B. C. Knapp, E. A. Knapp, G. J. Lucas, D. E. Nagle, and J. M. Potter. 1964, 9p CONF-650306-28
Contract W-7405-eng-36
Presented at Particle Accelerator Conference, Washington, D. C. Distribution: No limitation.

Descriptors: (*Linear accelerators, Tanks (Containers)).

LA-DC-7026 **Field 20L**
CFSTI Prices: HC$3.00 MF$0.75
Los Alamos Scientific Lab., Univ. of California, N. Mex.
THE ELECTRICAL CONDUCTIVITY OF SOME CRYOGENIC FLUIDS.
Master's thesis,
by Walter L. Willis. 1965, 91p
Contract W-7405-eng-36
Distribution: No limitation.

Descriptors: (*Cryogenics, Electrical conductance).

LA-DC-7158 **Field 20M**
CFSTI Prices: HC$1.00 MF$0.50
Los Alamos Scientific Lab., Univ. of California, N. Mex.
BEHAVIOR OF PERLITE IN COMPRESSION,
by J. K. Novak. 1965, 22p CONF-650802-4
Contract W-7405-eng-36
Presented at the Cryogenic Engineering Conference, Houston, Tex. Distribution: No limitation.

Descriptors: (*Pearlite, Cryogenics), (*Cryogenics, Pearlite).

LA-DC-7164 **Field 20M**
CFSTI Prices: HC$1.00 MF$0.50
Los Alamos Scientific Lab., Univ. of California, N. Mex.
CHILLDOWN AND STORAGE LOSSES OF LARGE LIQUID HYDROGEN STORAGE DEWARS,
by D. N. Liebenberg, R. L. Stokes, and F. J. Edeskuty. 1965, 14p CONF-650802-3
Contract W-7405-eng-36
Presented at the Cryogenic Engineering Conference, Houston, Tex. Distribution: No limitation.

Descriptors: (*Cryogenics, Storage tanks), (*Storage tanks, Cryogenics).

LA-DC-7218 **Field 20M, 20D**
CFSTI Prices: HC$2.00 MF$0.50
Los Alamos Scientific Lab., Univ. of California, N. Mex.
CRITICAL PHENOMENA IN FLUIDS,
by E. F. Hammel. 1964, 41p CONF-650811-4
Contract W-7405-eng-36
Presented at Symposium on Heat Flow below 100 Deg K and its Technological Applications, Grenoble, France. Distribution: No limitation.

Descriptors: (*Phase studies, Fluids), (*Fluids, Phase studies).

LA-3324-MS **Field 20D, 12A, 9B**
CFSTI Prices: HC$2.00 MF$0.50
Los Alamos Scientific Lab., Univ. of California, N. Mex.
HASTI. A NUMERICAL CALCULATION OF TWODIMENSIONAL LAGRANGIAN HYDRODYNAMICS UTILIZING THE CONCEPT OF SPACE-DEPENDENT TIME STEPS,
by Phillip L. Browne and Martha S. Hoyt. 5 May 65, 24p
Contract W-7405-eng-36
Distribution: No limitation.

Descriptors: (*Hydrodynamics, Two-dimensional flow), (*Two-dimensional flow, Programming (Computers)), (*Approximation (Mathematics), Programming (Computers)).

LA-3377 **Field 20H**
CFSTI Prices: HC$1.00 MF$0.50
Los Alamos Scientific Lab., Univ. of California, N. Mex.
THE NON-EQUILIBRIUM DIFFUSION EQUATION,
by B. E. Freeman. 1 Sep 65, 18p
Contract W-7405-eng-36
Distribution: No limitation.

Descriptors: (*Nuclear particles, Diffusion), (*Diffusion, Equations), (*Transport properties, Nuclear particles).

MATT-327 **Field 20I**
CFSTI Prices: HC$2.00 MF$0.50
Princeton Univ., N. J. Plasma Physics Lab.
MEASUREMENT OF ION CONCENTRATIONS AND ELECTRON TEMPERATURE IN A BARIUM PLASMA,
by L. C. Johnson, E. Hinnov, and N. Rynn. May 65, 30p
Contract AT (30-1)-1258
Distribution: No limitation.

Descriptors: (*Plasma medium, Barium), (*Barium, Plasma physics).

MATT-332 **Field 20I, 18A**
CFSTI Prices: HC$3.00 MF$0.50
Princeton Univ., N. J. Plasma Physics Lab.
PLASMA HEATING AT 500 MEGAHERTZ,
by Robert A. Ellis, Jr. and Barry J. Rye. Jun 65, 54p
Contract AT (30-1)-1238
Distribution: No limitation.

Descriptors: (*Plasma medium, Heating).

MATT-333 **Field 20I**
CFSTI Prices: HC$2.00 MF$0.50
Princeton Univ., N. J. Plasma Physics Lab.
EXPERIMENTS WITH CESIUM PLASMAS IN A MAGNETIC FIELD WITH VARIABLE CURVATURE,
by N. DAngelo and S. Goeler. Jun 65, 50p CONF-650806-2
Contract AT (30-1)-1238
Presented at International Conference on Phenomena in Ionized Gases (7th), Belgrade. Distribution: No limitation.

Descriptors: (*Plasma medium, Cesium), (*Magnetic Fields, Plasma oscillations).

MURA-713 **Field 20G**
CFSTI Prices: HC$5.00 MF$1.00
Midwestern Universities Research Assn., Stoughton, Wis.
THE DESIGN OF PROTON LINEAR ACCELERATORS FOR ENERGIES UP TO 200 MEV,
by B. Austin, T. W. Edwards, J. E. Omeara, M. L. Palmer, and D. E. Young. 1 Jul 65, 164p
Contract AT (11-1)-384
Distribution: No limitation.

Descriptors: (*Proton accelerators, Design), (*Linear accelerators, Proton accelerators).

N65-15376 **Field 20I, 9A**
CFSTI Prices: HC$2.00 MF$0.50
Institute for Direct Energy Conversion, Univ. of Pennsylvania, Philadelphia.
CRITERIA FOR EMITTER SHEATH POLARITY IN PLASMA DIODES,
by G. L. Schrenk. 1963, 31p
NSG316
NASA CR-60333
Distribution: No limitation.

Descriptors: (*Plasma sheath, Diodes), (*Diodes, Plasma sheath).

N65-16269 Field 20C
CFSTI Prices: HC$1.00 MF$0.50
Pennsylvania State Univ., University Park. Ionosphere Research Lab.
THE HELICAL MOTION OF A SPHERE IN THE PRESENCE OF A MAGNETIC FIELD,
by David P. Hoult. 1963, 10p
Grant Ns G134 61
NASA CR-60518
Distribution: No limitation.

Descriptors: (*Spheres, Motion), (*Magnetic field, Motion).

N65-16320 Field 20E
CFSTI Prices: HC$1.00 MF$0.50
General Dynamics/Electronics, Rochester, N.Y., Research Dept.
LASER MODULATION AT THE ATOMIC LEVEL.
Monthly rept. no. 1, 1 Nov-30 Nov 64,
by E. G. Brock, F. C. Unterleiter, Sr., Y. C. Kiang, and J. F. Stephany. 10 Dec 64, 8p
Contract NASw1008
NASA CR-60572
Distribution: No limitation.

Descriptors: (*Lasers, Modulation).

N65-16329 Field 20F, 11C
CFSTI Prices: HC$1.00 MF$0.50
IIT Research Inst., Chicago, Ill.
INVESTIGATION OF LIGHT SCATTERING IN HIGHLY REFLECTING PIGMENTED COATINGS.
Monthly progress rept. for 1 Aug-1 Sep 63,
by Gene A. Zerlant. 1 Sep 63, 10p IITRI-C-6018-2
Contract NASr65 07
NASA CR-51393
Distribution: No limitation.

Descriptors: (*Coatings, Optical properties), (*Light, Scattering).

N65-16490 Field 20I
CFSTI Prices: HC$2.00 MF$0.50
Maryland Univ., College Park. Inst. for Fluid Dynamics and Applied Mathematics.
KINETIC THEORY OF THE CLASSICAL ELECTRON GAS IN A POSITIVE BACKGROUND. I-EQUILIBRIUM THEORY,
by R. L. Guernsey. Oct 63, 39p BN-337
Contract NSG22062
NASA CR-52515
Distribution: No limitation.

Descriptors: (*Plasma medium, Kinetic theory), (*Kinetic theory, Plasma medium).

N65-17066 Field 20H
CFSTI Prices: HC$1.00 MF$0.50
Yale Univ., New Haven, Conn.
MUONIUM AND POSITRONIUM PHYSICS,
by J. M. Bailey and V. W. Hughes. 1963, 17p
Contract NSG159
NASA CR-51187
Distribution: No limitation.

Descriptors: (*Positronium, Physics), (*Muons, Physics).

N65-17282 Field 20M, 7D
CFSTI Prices: HC$1.00 MF$0.50
National Bureau of Standards, Boulder, Colo.
THE SURFACE TENSION OF HYDROGEN,
by F. E. E. Germann, R. D. McCarty, and R. B. Stewart. 1 Oct 62, 14p NBS-7616
Contract NASA Order R-45
NASA CR-50286
Distribution: No limitation.

Descriptors: (*Liquefied gases, Hydrogen), (*Hydrogen, Surface tension).

N65-17283 Field 20M, 7D
CFSTI Prices: HC$1.00 MF$0.50
National Bureau of Standards, Boulder, Colo.
THERMAL CONDUCTIVITY OF TEN CRYOGENIC LIQUIDS.
A bibliography,
by L. A. Hall. 15 Apr 63, 21p NBS-7684
Contract NASA Order R-45
NASA CR-50292
Distribution: No limitation.

Descriptors: (*Liquefied gases, Thermal conductivity).

N65-17530 Field 20K
CFSTI Prices: HC$2.00 MF$0.50
Catholic Univ. of America, Washington, D. C.
FINITE SLUMP STRAINS IN VERTICAL, INFINITELY LONG, HOLLOW, ELASTIC CYLINDER EXTERNALLY CASE-BONDED TO AN ELASTIC TANK,
by R. N. Vaishnav. Dec 64, 50p Technical rept. no. TR-7
Grant NsG125 61 (Suppl. 3)
NASA CR-60845
Distribution: No limitation.

Descriptors: (*Cylindrical bodies, Strain (Mechanics)).

N65-17537 Field 20D
CFSTI Prices: HC$2.00 MF$0.50
Engineering Projects Lab., Mass. Inst. of Tech., Cambridge.
INVESTIGATION OF STABILITY PREDICTIONS OF FLUID-JET AMPLIFIER SYSTEMS.
Semiannual rept.,
by F. T. Brown, S. D. Graber, and R. E. Wallhagen. 30 Oct 64, 42p DSR-5169-1
Contract NAS3 5203
NASA CR-54244
Distribution: No limitation.

Descriptors: (*Fluid amplifiers, Jets), (*Jets, Stability).

N65-17864 Field 20F
CFSTI Prices: HC$1.00 MF$0.50
Ohio State Univ. Research Foundation, Columbus. Antenna Lab.
EFFECT OF TAPER ANGLE VARIATION ON THE SUBMILLIMETER, FAR-INFRARED TRANSMISSION EFFICIENCY OF LINEARLY TAPERED LIGHT PIPES,
Technical memo,
by G. G. Shephard. 26 May 64, 6p Rept. no. 1093-20
Contract NSG7460
NASA CR-60912
Distribution: No limitation.

Descriptors: (*Fiber optics, Wave transmission), (*Infrared radiation, Wave transmission).

N65-18482 Field 20M
CFSTI Prices: HC$2.00 MF$0.50
Cornell Aeronautical Lab., Inc., Buffalo, N. Y.
MEASUREMENT OF RADIATIVE HEAT TRANSFER WITH THIN FILM RESISTANCE THERMOMETERS,
by Leonard Bogdan. Jul 63, 45p Rept. no. CAL-HM-1510-Y-9
Contract NAS8 823,
Proj. HM1510Y
NASA CR-57125
Distribution: No limitation.

Descriptors: (*Thermal radiation, Measurement), (*Heat transfer, Measurement).

N65-19862 Field 20I
CFSTI Prices: HC$1.00 MF$0.50
John Jay Hopkins Lab. for Pure and Applied Science, General Atomic, San Diego, Calif.
EXPERIMENTAL INVESTIGATION OF THE FUNDA- MENTAL MODES OF A COLLISIONLESS PLASMA.
Quarterly rept. no. 1. 10 Mar-10 Jun 64,
by W. E. Drummond, J. H. Malmberg, and C. B. Wharton. 22 Jun 64, 6p Rept. no. GACD-5403
Contract NAS7-275,
Proj. 407
NASA CR-57469
Distribution: No limitation.

Descriptors: (*Plasma medium, Physical properties).

N65-21316 Field 20N
CFSTI Prices: HC$1.00 MF$0.50
Rensselaer Polytechnic Inst., Troy, N. Y.
AN X-BAND WAVEGUIDE CELL FOR STUDY OF MICROWAVE PROPAGATION THROUGH MAGNETOPLASMA,
by J. H. Noon, E. H. Holt, and J. F. Reynolds. Nov 64, 19p Rept. no. TR-16
Grant NsG48 60
NASA CR-57969
Distribution: No limitation.

Descriptors: (*Wave transmission, Plasma medium), (*Waveguides, X band).

N65-21476 Field 20F
CFSTI Prices: HC$1.00 MF$0.50
National Aeronautics and Space Administration, Cleveland, Ohio. Lewis Research Center.
ANOMALOUS THERMOLUMINESCENT KINETICS OF IRRADIATED ALKALI HALIDES,
by J. A. Partridge and C. E. May. 1 May 64, 6p
NASA-TM-X-51727
Prepared for Physical Review Letters. Distribution: No limitation.

Descriptors: (*Alkali metal compounds, Luminescence), (*Luminescence, Alkali metal compounds).

N65-21625 Field 20K
CFSTI Prices: HC$5.00 MF$1.00
Cornell Aeronautical Lab., Inc., Buffalo, N. Y.
NONSIMILAR SOLUTIONS FOR IMPACT-GENERATED SHOCK PROPAGATION IN SOLIDS.
Final rept.,
by William J. Rae. Mar 65, 153p Rept. no. CAL-AI-1821-A-2
Contract NAS3 2536
NASA CR-54251
Distribution: No limitation.

Descriptors: (*Solids, Impact shock), (*Impact shock, Propagation).

N65-21762 Field 20L, 18H
CFSTI Prices: HC$1.00 MF$0.50
John Jay Hopkins Lab. for Pure and Applied Science, General Atomic, San Diego, Calif.
RADIATION EFFECTS ON SILICON.
Quarterly progress rept. no. 3 for 1 Dec 64-28 Feb 65,
by D. K. Nichols, D. P. Snowden, and V. A. J. van Lint. 15 Mar 65, 17p Rept. no. GACD-6249
Contract NAS7 289,
Proj. 430
NASA CR-62241
Distribution: No limitation.

Descriptors: (*Silicon, Radiation damage).

N65-21774 Field 20I
CFSTI Prices: HC$2.00 MF$0.50
General Electric Co., Philadelphia, Pa. Missile and Space Div.

A MAGNETOGASDYNAMIC POWER GENERATION STUDY.
Quarterly rept. no. 1,
by Fredrick H. Shair. 20 Nov 64, 40p
Contract NAS3 6260
NASA CR-62229
Distribution: No limitation.

Descriptors: (*Magnetohydrodynamics, Power), (*Plasma medium, Electrical conductance).

N65-22123 **Field 20M**
CFSTI Prices: HC$3.00 MF$0.50
Auburn Univ., Ala. Dept. of Mechanical Engineering.
PRELIMINARY INVESTIGATION OF PRESSURE INFLUENCE ON MULTIPHASE HEAT TRANSFER.
Rept. no. 11,
by R. I. Vachon, G. E. Tanger, R. B. Pollard, andD. L. Davis. Nov 64, 60p
Contract NAS8 11234
NASA CR-62345
Distribution: No limitation.

Descriptors: (*Heat transfer, Pressure), (*Pressure, Multiphase flow).

N65-22184 **Field 20F**
CFSTI Prices: HC$1.00 MF$0.50
Laboratories for Applied Sciences, Chicago Univ., Ill.
STABILITY OF FLUORESCENCE OF SODIUM SALICYLATE,
by Rinda Allison, Jay Burns, and A. J. Tuzzolino. 1964, 3p
Grant NsG276
NASA CR-56503
Distribution: No limitation.

Descriptors: (*Salicylates, Fluorescence), (*Fluorescence, Salicylates).

Identifiers: Sodium salicylate.

N65-22196 **Field 20I**
CFSTI Prices: HC$2.00 MF$0.50
Microwave Lab., Stanford Univ., Calif.
LOW-FREQUENCY IMPEDANCE CHARACTERISTICS OF A LANGMUIR PROBE IN A PLASMA.
Internal memo.,
by F. W. Crawford and R. Grard. Feb 65, 30p
Rept. no. ML-1294
Grants NSF GP936, NASA NsG174-61
NASA CR-62131
Distribution: No limitation.

Descriptors: (*Langmuir probes, Electrical impedance).

N65-22204 **Field 20B, 20L**
CFSTI Prices: HC$3.00 MF$0.50
Stanford Univ., Calif. Dept. of Physics.
PHONON INDUCED RELAXATION IN EXCITED OPTICAL STATES OF TRIVALENT PRASEODYMIUM IN LaF3,
by W. M. Yen, W. C. Scott, and A. L. Schawlow. 1964, 59p
Grant NsG 331
NASA CR-56902
Distribution: No limitation.

Descriptors: (*Phonons, Praseodymium), (*Relaxation time, Crystal lattices).

N65-24040 **Field 20M**
CFSTI Prices: HC$2.00 MF$0.50
Wisconsin Univ., Madison. Theoretical Chemistry Inst.
THE TRANSPORT PROPERTIES OF A MODERATELY DENSE LENNARD-JONES GAS,
by C. F. Curtiss, Michael B. McElroy, and David K.Hoffman. 1 May 64, 29p
Grant NsG275 62
NASA CR-56904
Distribution: No limitation.

Descriptors: (*Gases, Transport properties).

N65-24977 **Field 20F, 11C**
CFSTI Prices: HC$2.00 MF$0.50
IIT Research Inst., Chicago, Ill. Technology Center.
INVESTIGATION OF LIGHT SCATTERING IN HIGHLY REFLECTING PIGMENTED COATINGS.
Quarterly rept. for 1 Feb-1 May 65,
by G. A. Zerlaut, S. Katz, B. H. Kaye, and V. Raziunas. 13 May 65, 39p IITRI-C-6018-14
Contract NASr-65 (07),
Proj. C6018
NASA CR-63118
Microfilmed from best available copy. Distribution: No limitation.

Descriptors: (*Coatings, Optical properties), (*Light, scattering).

N65-25000 **Field 20F, 20L**
CFSTI Prices: HC$1.00 MF$0.50
Rensselaer Polytechnic Inst., Troy, N. Y. Dept. of Nuclear Engineering and Science.
INFRARED PROPERTIES OF 40-60 MEV ELECTRONIRRADIATED GERMANIUM,
by J. F. Becker and J. C. Corelli. 1965, 12p
Grant NsG290
NASA CR-62883
Distribution: No limitation.

Descriptors: (*Germanium, Infrared phenomena), (*Infrared phenomena, Germanium).

N65-25265 **Field 20I**
CFSTI Prices: HC$5.00 MF$1.50
Maryland Univ., College Park. Inst. for Fluid Dynamics and Applied Mathematics.
COLLISIONS AND NONLINEAR EFFECTS IN PLASMAS.
Doctoral thesis,
by Adrian Anatol Dolinsky. 7 May 65, 154p
Grant NsG220
NASA CR-63162
Distribution: No limitation.

Descriptors: (*Plasma medium, Physical properties).

N65-25594 **Field 20F, 11F**
CFSTI Prices: HC$4.00 MF$0.75
Bausch and Lomb Inc., Rochester, N. Y.
GRATING GROOVE FORMATION IN AU AND AU-GE ALLOYS.
Quarterly rept. no. 4,
by C. Frank Mooney. 31 Jan 65, 91p
Contract Nonr-4277 (00)
NASA CR-63264
Distribution: No limitation.

Descriptors: (*Diffraction gratings, Gold alloys), (*Gold alloys, Diffraction gratings), (*Germanium alloys, Diffraction gratings).

N65-27364 **Field 20H**
CFSTI Prices: HC$1.00 MF$0.50
National Aeronautics and Space Administration, Greenbelt, Md. Goddard Space Flight Center.
EQUATION OF STATE MATTER AT SUPERNUCLEAR DENSITY,
by E. R. Harrison. 18 Apr 65, 13p NASA-TMX-55223, X-640-65-170
Distribution: No limitation.

Descriptors: (*Equations of state, Nuclear structure), (*Nuclear structure, Equations of state).

N65-27365 **Field 20K**
CFSTI Prices: HC$2.00 MF$0.50
Michigan Univ., Ann Arbor. Dept. of Nuclear Engineering.
DAMAGE TO SOLIDS CAUSED BY CAVITATION,
by Frederick G. Hammitt. 1965, 48p Rept. no. 03424-26-1
Grants NSF G22529, NASA NsG39 60
NASA CR-63619
Prepared for presentation at Royal Society Discussion of Deformation of Solids due to Liquid Impact, London, England, 27 May 1965. Distribution: No limitation.

Descriptors: (*Solids, Damage), (*Cavitation, Damage).

N65-27377 **Field 20B, 20L**
CFSTI Prices: HC$1.00 MF$0.50
Naval Ordnance Test Station, China Lake, Calif.
THEORETICAL AND EXPERIMENTAL INVESTIGATION OF THE PHYSICS OF CRYSTALLINE SURFACES.
Quarterly status rept. no. 1, 1Feb-30 Apr 65. 1965, 3p
NASA CR-63628
Distribution: No limitation.

Descriptors: (*Crystallography, Surface properties), (*Solid state physics, Crystallography).

N65-27382 **Field 20N, 3B, 17I**
CFSTI Prices: HC$1.00 MF$0.50
Ohio State Univ. Research Foundation, Columbus. Antenna Lab.
THEORETICAL STUDIES OF THE TWO-FREQUENCY RADAR EXPERIMENTS. INSTRUMENTATION AND DATA REDUCTION TECHNIQUES USED IN THE DOPPLER SPECTRUM EXPERIMENTS. MEASUREMENT OF THE SCATTERING PROPERTIES OF THE MOON.
Semi-annual rept. for 1 Oct 64-30 Apr 65.
1 Jun 65, 7p
Grant NASA NsG213 61
NASA Cr-63639
Distribution: No limitation.

Descriptors: (*Radar scanning, Moon), (*Moon, Radar scanning).

N65-27393 **Field 20I**
CFSTI Prices: HC$1.00 MF$0.50
National Aeronautics and Space Administration, Cleveland, Ohio. Lewis Research Center.
TWO-STEP PROCESS TO INCREASE ATOMIC HYDROGEN ION PRODUCTION IN LOW-PRESSURE RADIOFREQUENCY DISCHARGE,
by George M. Prok. Jul 65, 13p NASA-TN-D-2912
Distribution: No limitation.

Descriptors: (*Hydrogen, Ions), (*Plasma physics, Hydrogen).

N65-27512 **Field 20M, 11B**
CFSTI Prices: HC$1.00 MF$0.50
National Beryllia Corp., Haskell, N. J.
RESEARCH ON THERMAL TRANSFER PHENOMENA.
Quarterly status rept. 1 Jan-31 Mar 65,
by Karsten H. Styhr. 1965, 11p
Contract NASw 1197
NASA CR-63650
Distribution: No limitation.

Descriptors: (*Heat transfer, Ceramic materials), (*Ceramic materials, Thermal stresses).

N65-27550 **Field 20M, 11F**
CFSTI Prices: HC$1.00 MF$0.50
National Aeronautics and Space Administration, Cleveland, Ohio. Lewis Research Center.
FORMULAS FOR RADIANT HEAT TRANSFER

BETWEEN NONGRAY PARALLEL PLATES OF POLISHED REFRACTORY METALS,
by J. Robert Branstetter. Jun 65, 17p NASA-TN-D-2902
Distribution: No limitation.

Descriptors: (*Refractory metals, Radiation (Heat transfer), (*Radiation (Heat transfer), Refractory metals).

N65-27813 **Field 20I, 14B**
CFSTI Prices: HC$1.00 MF$0.50
National Aeronautics and Space Administration, Langley Station, Va. Langley Research Center.
DETERMINATION OF PLASMA TEMPERATURE AND ELECTRON DENSITY DISTRIBUTIONS USING MILLIMETER WAVES,
by William F. Leonard. Jul 65, 10p NASA-TN-D-2892
Presented at the Millimeter and Submillimeter Conference, Orland, Fla., 7-10 Jan 63, sponsored by The Institute of Electrical and Electronics Engineers. Distribution: No limitation.

Descriptors: (*Millimeter waves, Probes), (*Probes, Plasma physics), (*Plasma physics, Probes).

N65-29951 **Field 20D**
CFSTI Prices: HC$0.75 MF$0.75
National Aeronautics and Space Administration, Washington, D. C. Scientific and Technical Information Div.
CHARTS FOR EQUILIBRIUM AND FROZEN NOZZLE FLOWS OF CARBON DIOXIDE,
by George G. Mateer and Victor L. Peterson. 1965, 78p NASA-SP-3019
Distribution: No limitation.

Descriptors: (*Carbon dioxide, Nozzle gas flow), (*Nozzle gas flow, Carbon dioxide).

N65-29960 **Field 20D**
CFSTI Prices: HC$1.00 MF$0.50
National Aeronautics and Space Administration, Cleveland, Ohio. Lewis Research Center.
STABILITY OF TWO-FLUID WHEEL FLOWS,
by Eli Reshotko and Carl F. Monnin. Aug 65, 25p NASA-TN-D-2696
Distribution: No limitation.

Descriptors: (*Incompressible flow, Stability), (*Vortices, Stability).

N65-29961 **Field 20K, 11D**
CFSTI Prices: HC$2.00 MF$0.50
National Aeronautics and Space Administration, Langley Station, Va. Langley Research Center.
STRUCTURAL BEHAVIOR AND BUCKLING STRENGTH OF HONEYCOMB SANDWICH CYLINDERS SUBJECTED TO BENDING,
by James P. Peterson and James Kent Anderson. Aug 65, 27p NASA-TN-D-2926
Distribution: No limitation.

Descriptors: (*Cylindrical bodies, Mechanical properties), (*Honeycomb cores, Bending), (*Sandwich construction, Bending).

N65-30697 **Field 20K**
CFSTI Prices: HC$2.00 MF$0.50
National Aeronautics and Space Administration, Greenbelt, Md. Goddard Space Flight Center.
MATERIAL DAMPING OF ALUMINUM BY A RESONANT-DWELL TECHNIQUE,
by Neal Granick and Jesse E. Stern. Aug 65, 21p NASA-TN-D-2893
Distribution: No limitation.

Descriptors: (*Damping, Aluminum), (*Aluminum, Damping).

Identifiers: Resonant-dwell technique.

N65-30725 **Field 20K, 20D**
CFSTI Prices: HC$3.00 MF$0.75
Illinois Univ., Urbana.
GEOMETRICAL AND INERTIAL PROPERTIES OF A CLASS OF THIN SHELLS OF A GENERAL TYPE,
by Will J. Worley and Han-chung Wang. Aug 65, 67p
Grant NsG434
NASA CR-271
Distribution: No limitation.

Descriptors: (*Aerodynamic configurations, Experimental design), (*Hydrodynamic configurations, Experimental design).

N65-30727 **Field 20I**
CFSTI Prices: HC$2.00 MF$0.50
California Univ., Berkeley.
MAGNETOHYDRODYNAMIC WAVES IN A PLASMA SLAB,
by Elisabeth A. Cooper. Aug 65, 26p
Grant NsG243 62
NASA CR-281
Distribution: No limitation.

Descriptors: (*Magnetohydrodynamics, Plasma medium), (*Plasma medium, Magnetohydrodynamics).

N65-30728 **Field 20N**
CFSTI Prices: HC$2.00 MF$0.50
Alabama Univ., Huntsville. Research Inst.
AN APPROXIMATE METHOD FOR THE COMPUTATION OF SCATTERING BY CONDUCTING CYLINDERS WITH ARBITRARY CROSS-SECTION,
by H. Y. Yee. Aug 65, 22p
Grant NsG381
NASA CR-282
Distribution: No limitation.

Descriptors: (*Electromagnetic waves, Scattering), (*Cylindrical bodies, Electromagnetic wave reflections).

N65-30734 **Field 20K**
CFSTI Prices: HC$2.00 MF$0.50
National Aeronautics and Space Administration, Langley Station, Va. Langley Research Center.
BUCKLING OF ECCENTRICALLY STIFFENED ORTHOTROPIC CYLINDERS,
by David L. Block, Michael E. Card, and Martin M.Mikulas, Jr. Aug 65, 31p NASA-TN-D-2960
Distribution: No limitation.

Descriptors: (*Cylindrical bodies, Buckling (Mechanics)), (*Buckling (Mechanics), Cylindrical bodies).

N65-30953 **Field 20L**
CFSTI Prices: HC$4.00 MF$0.75
Research Triangle Inst., Durham, N. C.
EFFECT OF MECHANICAL STRAIN ON p-n JUNCTIONS,
by J. J. Wortman. Aug 65, 106p
Contract NASr222
NASA CR-275
Distribution: No limitation.

Descriptors: (*Semiconductors, Piezoelectric effect), (*Piezoelectric effect, Semiconductors).

N65-30955 **Field 20D**
CFSTI Prices: HC$3.00 MF$0.75
National Aeronautics and Space Administration, Moffett Field, Calif. Ames Research Center.
AN EXPERIMENTAL AND THEORETICAL INVESTIGATION OF THE PRESSURE DISTRIBUTION AND FLOW FIELDS OF BLUNTED CONES AT HYPERSONIC MACH NUMBERS,
by Joseph W. Cleary. Aug 65, 75p NASA-TN-D-2969
Distribution: No limitation.

Descriptors: (*Blunt bodies, Hypersonic characteristics), (*Hypersonic flight, Blunt bodies).

N65-30956 **Field 20D, 9B**
CFSTI Prices: HC$2.00 MF$0.50
National Aeronautics and Space Administration, Moffett Field, Va. Ames Research Center.
A DESCRIPTION OF NUMERICAL METHODS AND COMPUTER PROGRAMS FOR TWO-DIMENSIONAL AND AXISYMMETRIC SUPERSONIC FLOW OVER BLUNTNOSED AND FLARED BODIES,
by Mamoru Inouye, John V. Rakich, andHarvard Lomax. Aug 65, 36p NASA-TN-D-2970
Distribution: No limitation.

Descriptors: (*Programming (Computers), Fluid mechanics), (*Fluid mechanics, Programming (Computers)).

N65-30961 **Field 20K, 11F**
CFSTI Prices: HC$2.00 MF$0.50
National Aeronautics and Space Administration. Lewis Research Center, Cleveland, Ohio.
OPTIMIZATION OF TIME-TEMPERATURE PARAMETERS FOR CREEP AND STRESS RUPTURE, WITH APPLICATION TO DATA FROM GERMAN COOPERATIVE LONG-TIME CREEP PROGRAM.
by Alexander Mendelson, Ernest Roberts, Jr., andS. S. Manson. Aug 65, 36p
NASA TND-2975
Distribution: No limitation.

Descriptors: (*Creep, Optimization), (*Rupture (Mechanics), Optimization).

N65-31144 **Field 20K**
CFSTI Prices: HC$1.00 MF$0.50
National Aeronautics and Space Administration, Huntsville, Ala. George C. Marshall Space Flight Center.
STRESS AND STRAIN DISTRIBUTIONS IN A THICKWALLED CYLINDER OF STRAIN-HARDENING MATERIAL, ELASTIC-PLASTICALLY STRAINED BY INTERNAL PRESSURE,
by C. K. Liu. Aug 65, 25p
NASA TND-2941
Distribution: No limitation.

Descriptors: (*Cylindrical bodies, Strain hardening), (*Strain (Mechanics), Cylindrical bodies).

N65-31556 **Field 20M**
CFSTI Prices: HC$2.00 MF$0.50
National Aeronautics and Space Administration, Cleveland, Ohio. Lewis Research Center.
HEAT-TRANSFER CHARACTERISTICS OF CRYOGENIC HYDROGEN FROM 1000 TO 2500 PSIA FLOWING UPWARD IN UNIFORMLY HEATED STRAIGHT TUBES,
by R. C. Hendricks, R. J. Simoneau, and R. Friedman. Sep 65, 38p NASA-TN-D-2977
Distribution: No limitation.

Descriptors: (*Hydrogen, Heat transfer), (*Liquefied gases, Fluid flow).

N65-31574 **Field 20M**
CFSTI Prices: HC$2.00 MF$0.50
Princeton Univ., N. J.
THERMODYNAMICS AND HIGHER-ORDER FLUID THEORIES,
by D. C. Leigh. Aug 65, 32p
Grant NsG664
NASA CR-292
Distribution: No limitation.

Descriptors: (*Thermodynamics, Theory).

N65-31647 Field 20M
CFSTI Prices: HC$2.00 MF$0.50
National Aeronautics and Space Administration, Cleveland, Ohio. Lewis Research Center.
HEAT TRANSFER IN THERMAL ENTRANCE REGION WITH LAMINAR SLIP FLOW BETWEEN PARALLEL PLATES AT UNEQUAL TEMPERATURES,
by Robert M. Inman. Sep 65, 37p NASA-TN-D-2980
Distribution: No limitation.

Descriptors: (*Heat transfer, Laminar flow).

N65-32964 Field 20M, 22B
CFSTI Prices: HC$2.00 MF$0.50
National Aeronautics and Space Administration, Langley Station, Va. Langley Research Center.
ONE-DIMENSIONAL NUMERICAL ANALYSIS OF THE TRANSIENT RESPONSE OF THERMAL PROTECTION SYSTEMS,
by Robert T. Swann, Claud M. Pittman, andJames C. Smith. Sep 65, 48p NASA-TND-2976
Distribution: No limitation.

Descriptors: (*Ablation, Thermal insulation), (*Thermal insulation, Ablation), (*Heat shields, Reentry vehicles).

N65-33362 Field 20F, 3B, 14B
CFSTI Prices: HC$2.00 MF$0.50
Delta Data Systems, Inc., College Park, Md.
IMPROVED DATA HANDLING TECHNIQUES FOR SPECTROMETER DATA.
Sep 65, 31p
Contract NAS5-9087
NASA CR-307
Distribution: No limitation.

Descriptors: (*Solar spectrum, Data processing systems), (*Spectroscopy, Data processing systems).

NAA-SR-MEMO-9817 Field 18N, 18J
CFSTI Prices: HC$2.00 MF$0.50
Atomics International, Canoga Park, Calif.
SNAP 10A, PIPING STRESS ANALYSIS,
by J. R. Boulanger. 22 Jan 65, 30p
Contract AT-11-1-GEN-8
Distribution: No limitation.

Descriptors: (*Nuclear power plants, Spacecraft), (*Stresses, Pipes).

NAA-SR-11008 Field 20D, 20M, 18I
CFSTI Prices: HC$3.00 MF$0.50
Atomics International, Canoga Park, Calif.
TRANS-FUGUE-I. A DIGITAL CODE FOR TRANSIENT TWO-PHASE FLOW AND HEAT TRANSFER,
by R. C. Noyes, J. G. Morgan, and H. H. Cappel. 25 Jul 65, 51p
Contract AT (11-1)-GEN-8
Distribution: No limitation.

Descriptors: (*Fast reactors, Simulation), (*Heat transfer, Fluid flow).

NYO-1480-18 Field 20H
CFSTI Prices: HC$3.00 MF$0.75
AEC computing And Applied Mathematics Center, New York Univ., N. Y.
VARIATIONAL STUDIES OF THE FEW BODY NUCLEUS,
by S. Aranoff and J. K. Percus. 15 Apr 65, 91p
Contract AT (30-1)-1480
Distribution: No limitation.

Descriptors: (*Nuclear models, Calculus of variations), (*Tritons, Nuclear models).

NYO-1930-44 Field 20H
CFSTI Prices: HC$4.00 MF$1.00
Clark Univ., Worcester, Mass. Dept. of Chemistry.
ISOMERIC CROSS-SECTION RATIOS IN THE (P, PN) AND HEAVY-ION NEUTRON-TRANSFER REACTIONS.
Doctoral thesis,
by Christopher Gatrousis. 1964, 137p
Contract AT (30-1)-1830
Submitted to Clark Univ. Norcester, Mass. Distribution: No limitation.

Descriptors: (*Isomeric transitions, Proton reactions), (*Proton reactions, Neutron reactions).

ORNL-TM-1156 Field 20H, 18J
CFSTI Prices: HC$4.00 MF$0.75
Oak Ridge National Lab., Tenn.
FAST-NEUTRON SCATTERING FROM SMALL CYLINDERS OF STEEL, ALUMINUM, AND GRAPHITE.
Doctoral thesis,
by John C. Courtney. Jul 65, 104p
Contract W-7405-eng-26
Distribution: No limitation.

Descriptors: (*Fast neutrons, Neutron scattering), (*Neutron scattering, Cylindrical bodies), Steel, Aluminum, Graphite.

ORNL-TM-1173 Field 20C
CFSTI Prices: HC$3.00 MF$0.50
Oak Ridge National Lab., Tenn.
EXPERIMENTAL SIMULATION OF LARGE, HIGH FIELD, SUPERCONDUCTING MAGNET OPERATION.
Quarterly rept. no. 1, 1 Mar-31 May 65,
by W. F. Gauster, D. L. Coffey, and H. A. Ullmaier. 23 Jun 65, 60p
Contract W-7405-eng-26
Distribution: No limitation.

Descriptors: (*Magnets, Simulation), (*Superconductivity, Magnets).

Patent 3,212,939 Field 20L
METHOD OF LOWERING THE SURFACE RECOMBINATION VELOCITY OF INDIUM ANTIMONIDE CRYSTALS.
Patent assigned to Navy,
by John L. Davis. 19 Oct 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Semiconductors, Carriers (Semiconductors)), (*Indium alloys, Antimony alloys), (*Carriers (Semiconductors), Velocity), Crystals, Surfaces, Etching, Glow discharges, Patents.

Identifiers: Indium antimonide.

The indium antimonide or other semiconductor crystal is for use in sensing electromagnetic radiation or for making other measurements. The crystal is treated to reduce the surface recombination velocity of the crystal. The process involves immersing the crystal in an etching solution, dilution of the solution with demineralized water, then with methyl alcohol, removing the crystal and placing it in a glass enclosure containing a dry nitrogen atmosphere. A glow discharge is excited in the atmosphere to reduce the surface recombination velocity of the crystal.

Patent 3,215,569 Field 20L
METHOD FOR INCREASING THE CRITICAL CURRENT OF SUPERCONDUCTING ALLOYS.
Patent assigned to AEC,
by George K. Kneip, Jr., Jesse O. Betterton, Jr.,Dewey S. Easton and James O. Scarbrough. 2 Nov 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Alloys, Superconductivity), (*Superconductors, Alloys), Electric currents, Annealing, Quenching (Cooling), Magnetic properties, Niobium alloys, Zirconium alloys, Transition temperature.

Superconducting alloys whose current-carrying capacity at superconducting temperatures may be increased by the method include alloys of zirconium and niobium, titanium and chromium, titanium and molybdenum and others. The alloy is annealed with a multiphase region of its equilibrium phase diagram below a homogeneous solid phase for a sufficient time to induce precipitation of a secondary phase. The alloy is then quenched to retain the secondary phase and subjected to a magnetic field below its critical magnetic field at or below its critical temperature.

PB-168 620 Field 20H, 12A
CFSTI Prices: HC$4.00 MF$1.00
Commissariat a l'Energie Atomique, Saclay (France). Centre d'Etudes Nucleaires.
POLES DE REGGE ET REPRESENTATION DE MANDELSTAM EN THEORIE DU POTENTIEL (Regge Poles and Mandelstam Representation in Potential Scattering),
by Daniel Bessis. 26 Mar 65, 132p CEA-R-2753
Distribution: No limitation. Text in French; Attached Summary in English.

Descriptors: (*Potential scattering, Complex variables), Potential theory, Energy, Monentum, Relativity theory, Transformations (Mathematics), France.

Identifiers: Regge poles.

The scattering of two spinless particles interacting is considered by a superposition of Yukawa potentials. An upper bound for the scattering amplitude is obtained for simultaneous complex values of energy and angular momentum. It is shown that the Regge poles remain confined in small domains of the complex angular momentum plane. The variation of these domains is studied when the energy (complex) varies. These first results allow deduction of an upper bound for the double spectral function. This upper bound is used to rigoroulsy show that the Schroedinger equation implies the Mandelstam representation for the type of potentials dealt with. The problem of subtractions is entirely solved, showing that the Mellin transform of the double spectral function can be analytically continued into the different simple spectral functions. (Author)

PB-168 623 Field 20I
CFSTI Prices: HC$1.00 MF$0.50
Commissariat a l'Energie, Atomique, Saclay (France). Centre d'Etudes Nucleaires.
MESURE DE L'ENERGIE DES PARTICULES D'UN PLASMA A L'AIDE DE LA SONDE PYROMETRIQUE POLARISEE (Measurement of the Energy of Plasma Particles with a Biased Pyrometric Probe,
by Richard Geller. Oct 65, 18p CEA-R-2853
Rept. in French; summary in English. Distribution: No limitation.

Descriptors: (*Plasma medium, Energy), Langmuir probes, Tungsten, Carbon, Electrons, Ions, France.

The biased pyrometric probe is a Langmuir probe made of tungsten or carbon. The ordinary working regime of this probe is beyond the saturation knees. Within the knees, and for cold plasmas it might operate like an ordinary Langmuir probe. But for hot and dense plasmas one compares the radiation power (measured by the brightness temperature) to the product V.I. of the characteristic beyond the saturation knees, then the energy of the ions and electrons of the plasma can be deduced in an extended range.

PB-168 625 Field 20H
CFSTI Prices: HC$3.00 MF$0.75
Commissariat a l'Energie Atomique, Saclay (France). Centre d'Etudes Nucleaires.
CONTRIBUTION A L'ETUDE DE L'INTERACTION ALPHA-ALPHA (Contribution to the Study of AlphaAlpha Interaction).
Doctoral thesis,

by Pierre Darriulat. 29 Mar 65, 96p CEA-R-2786
Distribution: No limitation. Text in French; Attached Summary in English.

Descriptors: (*Alpha particle reactions, Elastic scattering), Differential cross section, Resonance scattering, Phase shift, Parity, Nuclear spins, Carbon, Beryllium, France.

Two sets of measurements of the alpha-alpha elastic scattering differential cross section are presented. The first set - angular distributions from 50 up to 120 MeV shows two new resonances, 6 (+) and 8 (+) at 25 and 57 MeV. Complex phase shifts are extracted from the data and a phenomenological potential is given. A description of the 3 alpha-particle 0 (+) states in C12 is made with this interaction potential. The second set - excitation curves between 20 and 50 MeV - allows investigation of the Be8 level structure within this energy range - it identifies the 16.6 and 16.9 MeV states as 2 (+), but the rise of inelastic processes at higher energies makes further identification of spins and parities more and more difficult. (Author)

RFP-616 **Field 20M, 18J**
CFSTI Prices: HC$1.00 MF$0.50
Rocky Flats Div., Dow Chemical Co., Golden, Colo.
THE TOTAL HEMISPHERICAL EMITTANCE OF POLISHED AND OF OXIDIZED ALPHA PLUTONIUM.
Preliminary rept.,
by R. H. Karlsson. 7 Jul 65, 10p
Contract AT (28-1)-1106
Distribution: No limitation.

Descriptors: (*Plutonium, Thermal radiation).

RPI-328-22 **Field 20H, 18K**
CFSTI Prices: HC$1.00 MF$0.50
Rensselaer Polytechnic Inst., Troy, N. Y. Dept. of Nuclear Engineering and Science.
THE EFFECTS OF COHERENT SCATTERING ON THE THERMALIZATION OF NEUTRONS IN BERYLLIUM,
by R. R. Fullwood, E. R. Gaerttner and R. E. Slovacek. 1964, 6p
Contract AT (30-3)-328
Distribution: No limitation.

Descriptors: (*Coherent scattering, Neutron transport theory), (*Thermal neutrons, Buckling (Neutron density)).

RPI-328-23 **Field 20H**
CFSTI Prices: HC$1.00 MF$0.50
Rensselaer Polytechnic Inst., Troy, N . Y. Dept. of Nuclear Engineering and Science.
MEASUREMENT AND ANALYSIS OF TIMEDEPENDENT NEUTRON SPECTRA IN D20.,
by R. C. Kryter, G. P. Calame, R. R. Fullwood, and E. R. Gaerttner. 1964, 7p
Contract AT (30-3)-328
Distribution: No limitation.

Descriptors: (*Neutron spectrum, Heavy water), (*Heavy water, Neutron spectrum).

SC-DC-64-2060 **Field 20B, 20A, 11I**
CFSTI Prices: HC$1.00 MF$0.50
New Mexico Univ., Albuquerque.
ULTRASONIC MEASUREMENTS ON PLASTIC CRYSTALS NEAR THE SOLID-SOLID TRANSFORMATION POINTS,
by Carl E. Schoie and John R. Green. Dec 64, 6p CONF-641210-2
Contract AT (29-1)-789
Distribution: No limitation.

Descriptors: (*Crystals, Ultrasonic radiation), (*Plastics, Ultrasonic radiation), (*Ultrasonic radiation, Plastics).

TID-21060 **Field 20B, 20M**
CFSTI Prices: HC$1.00 MF$0.50
Oxford Univ. (England). Dept. of Theoretical Physics.
THERMAL CONDUCTIVITY OF INSULATING CRYSTALS IN THE PRESENCE OF NORMAL PROCESSES,
by J. A. Krumhansl. 1963, 20p
Contract AT (30-1)-1725
Distribution: No limitation.

Descriptors: (*Crystals, Thermal conductivity), (*Phonons, Transport properties).

TID-21845 **Field 20I**
CFSTI Prices: HC$1.00 MF$0.50
Stanford Univ., Calif. Inst. for Plasma Research.
THE STUDY OF PLASMA DIFFUSION ACROSS MAGNETIC FIELDS.
Quarterly status rept. no. 12, 1 Feb 65- 30 Apr 65,
by O. Buneman. May 65, 23p
Contract AT (04-3)-326
Distribution: No limitation.

Descriptors: (*Plasma medium, Magnetic fields), (*Magnetic fields, Plasma medium), Diffusion.

TID-21929 **Field 20H**
CFSTI Prices: HC$4.00 MF$0.75
Maryland Univ., College Park. Dept. of Physics and Astronomy.
ON THE RADIATIVE HYPERON DECAYS ξ (±) to N + PION (±) + GAMMA.
Doctoral thesis,
by Ming Chiang Li. Apr 65, 117p TR-451
Contract AT (40-1)-2504
Distribution: No limitation.

Descriptors: (*Sigma hyperons, Radioactive decay), (*Meson reactions, Pions).

TID-21933 **Field 20A**
CFSTI Prices: HC$3.00 MF$0.75
Tennessee Univ., Knoxville. Dept. of Electrical Engineering.
A TRANSISTOR HYBRID-PI NOISE MODEL.
Scientific rept. no. 3,
by Ronald Nutt, T. V. Blalock, and J. F. Pierce. 1 Oct 62, 75p
Contract W-7405-eng-26
Distribution: No limitation.

Descriptors: (*Noise generators, Transistors), (*Transistors, Noise generators).

TID-21937 **Field 20K**
CFSTI Prices: HC$4.00 MF$0.75
Maryland Univ., College Park. Dept. of Physics and Astronomy.
A STUDY OF HYPERFRAGMENTS PRODUCED BY 2.3 BeV/c K MINUS INTERACTIONS IN EMULSION.
Doctoral thesis,
by Ravinder Jit Prem. Apr 65, 115p TR-444
Contract AT (40-1)-2304
Distribution: No limitation.

Descriptors: (*K mesons, Meson reactions), (*Hyperons, Meson reactions).

TID-21947 **Field 20L**
CFSTI Prices: HC$3.00 MF$0.75
Vanderbilt Univ., Nashville, Tenn.
DETERMINATION OF ENERGY GAPS IN SUPERCONDUCTORS BY A NEW TECHNIQUE USING LOW RESISTANCE CONTACTS.
Doctoral thesis,
by Donald Barrett Sullivan. May 65, 65p
Contract AT (40-1)-1087
Submitted to Vanderbilt Univ., Nashville, Tenn.
Distribution: No limitation.

Descriptors: (*Superconductors, Tunneling (Electronics)).

UCRL-11338 Rev. I **Field 20H**
CFSTI Prices: HC$6.00 MF$1.25
Lawrence Radiation Lab., Univ. of California, Berkeley.
STUDIES IN THE LIQUID-DROP THEORY OF NUCLEAR FISSION,
by James Rayford Nix and Wladyslaw J. Swiatocki. 1 Apr 64, 213p
Contract W-7405-eng-48
Distribution: No limitation.

Descriptors: (*Fission, Nuclear models), (*Nuclear models, Fission).

UCRL-11681 **Field 20H**
CFSTI Prices: HC$4.00 MF$1.00
Lawrence Radiation Lab., Univ. of California, Berkeley.
SCATTERING OF 50.9 MeV ALPHA PARTICLES FROM Ne 20 AND Ca 40.
Doctoral thesis,
by Arthur Springer. 6 May 65, 131p
Contract W-7405-eng-48
Distribution: No limitation.

Descriptors: (*Alpha particles, Inelastic scattering), (*Neon, Alpha particles), (*Calcium, Alpha particles).

UCRL-14242 **Field 20J**
CFSTI Prices: HC$2.00 MF$0.50
Lawrence Radiation Lab., Univ. of California, Livermore.
HYDRODYNAMIC CALCULATIONS OF GENERAL RELATIVISTIC COLLAPSE,
by Michael M. May and Richard H. White. 7 Jun 65, 40p
Contract W-7405-eng-48
Distribution: No limitation.

Descriptors: (*Relativity theory, Gravity), (*Gravity, Hydrodynamics).

UCRL-16000 (SUMM.) **Field 20G**
CFSTI Prices: HC$2.00 MF$0.75
Lawrence Radiation Lab., Univ. of California, Berkeley.
200 BEV ACCELERATOR DESIGN STUDY.
Jun 65, 26p
Contract W-7405-eng-48
Distribution: No limitation.

Descriptors: (*Protron accelerators, Synchrotrons), (*Synchrotrons, Protron accelerators).

21. PROPULSION AND FUELS

GE-TM-65-3-6 **Field 21F, 18I, 13J, 5C**
CFSTI Prices: HC$1.00 MF$0.50
General Electric Co., Cincinnati, Ohio. Nuclear Materials and Propulsion Operation.
NUCLEAR DRY CARGO SHIPS VS. CONVENTIONAL,
by Ben Blumberg, Jr. 5 Mar 65, 20p
Contract AT (40-1)-2847
Distribution: No limitation.

Descriptors: (*Nuclear powered vessels, Cargo ships), (*Economics, Nuclear powered vessels).

GEMP-190 **Field 21F**
CFSTI Prices: HC$3.00 MF$0.50
General Electric Co., Cincinnati, Ohio. Nuclear Materials and Propulsion Operation.
INTRODUCTION TO NUCLEAR PROPULSION. LECTURE 1. INTRODUCTION AND BACKGROUND,

by Gunnar Thornton. Feb 63, 80p
Contract AT(11-1)-171, NAS 8-5215
Distribution: No limitation.

Descriptors: (*Spacecraft nuclear propulsion, Scientific research).

GEMP-328 **Field 21F, 13J**
CFSTI Prices: HC$3.00 MF$0.75
General Electric Co., Cincinnati, Ohio. Nuclear Materials and Propulsion Operation.
630A MARITIME NUCLEAR STEAM GENERATOR.
Progress rept. no. 12.
31 Dec 64, 93p
Contract AT(40-1)-2847
Distribution: No limitation.

Descriptors: (*Nuclear powered vessels, Nuclear power plants), (*Steam power plants, Nuclear power plants).

GEMP-341 **Field 21F, 18E, 13J**
CFSTI Prices: HC$1.00 MF$0.50
General Electric Co., Cincinnati, Ohio. Nuclear Materials and Propulsion Operation.
630A MARK IV MARITIME NUCLEAR STEAM GENERATOR.
Summary rept.
26 Feb 65, 9p
Contract AT(40-1)-2847
Distribution: No limitation.

Descriptors: (*Nuclear powered vessels, Nuclear reactors), (*Steam power plants, Nuclear propulsion).

LA-DC-6837 **Field 21H, 21F**
CFSTI Prices: HC$2.00 MF$0.50
Los Alamos Scientific Lab., Univ. of California, N. Mex.
OPTIMAL NUCLEAR ROCKET ENGINE CONTROL,
by Ronald R. Mohler. 12 Mar 65, 35p CONF-650413-2
Contract W-7405-eng-36
Presented at Symposium on Neutron Dynamics and Control, Tucson, Ariz. Distribution: No limitation.

Descriptors: (*Nuclear propulsion, Control).

LA-DC-7118 **Field 21F**
CFSTI Prices: HC$2.00 MF$0.75
Los Alamos Scientific Lab., Univ. of California, N. Mex.
ADVANCED NUCLEAR PROPULSION CONCEPTS,
by Ralph S. Cooper. 1965, 38p CONF-650711-2
Contract W-7405-eng-36
Presented at the AIAA Annual Meeting and Technical Demonstration (2nd) San Francisco. Distribution: No limitation.

Descriptors: (*Nuclear propulsion, Rocket propulsion), (*Rocket propulsion, Nuclear propulsion).

N65-16315 **Field 21F**
CFSTI Prices: HC$6.00 MF$1.25
Brown Engineering Co., Inc., Huntsville, Ala. Research Labs.
STUDY OF RANKINE-CYCLE SPACE NUCLEAR POWER SYSTEMS,
by A. Lucile Cox and Roy W. Blanton, Jr. Aug 64, 230p Technical note R-113
Contract NAS8 5289
NASA CR-60553
Distribution: No limitation.

Descriptors: (*Spacecraft nuclear propulsion, Rankine cycle).

N65-17100 **Field 21B, 7D**
CFSTI Prices: HC$1.00 MF$0.50
California Univ., Berkeley.
INFRARED RADIATION MEASUREMENTS OF COMBUSTION GASES.
Quarterly progress rept. no. 2, 1 Oct-31 Dec 64,
by M. M. Abu-Romia, L. S. Wang, and W. H. Giedt. 15 Jan 65, 18p
Contract NAS8 11468
NASA CR-60714
Distribution: No limitation.

Descriptors: (*Combustion products, Spectra (Infrared)), (*Infrared spectroscopy, Combustion products).

N65-17274 **Field 21F, 22B**
CFSTI Prices: HC$4.00 MF$1.00
General Electric Co., Cincinnati, Ohio. Space Power and Propulsion Section.
DEVELOPMENT OF ELECTRICAL SWITCHGEAR FOR SPACE NUCLEAR ELECTRICAL SYSTEMS.
Final rept. Phase I,
by R. N. Edwards. 1964, 145p
Contract NAS32546
NASA CR-54247
Distribution: No limitation.

Descriptors: (*Spacecraft nuclear propulsion, Electric switches), (*Electric switches, Spacecraft nuclear propulsion).

N65-18480 **Field 21B**
CFSTI Prices: HC$3.00 MF$0.50
General Applied Science Labs., Inc., Westbury, N. Y.
MIXING PROCESSES IN SUPERSONIC COMBUSTION,
by Antonio Ferri, Gino Moretti, and Simon Slutsky. 1965, 60p
Contract nos. AF49 638 991, AF33 657 10463
NASA CR-57127
Prepared in cooperation with New York Univ., N. Y. Distribution: No limitation.

Descriptors: (*Combustion, Supersonic characteristics).

N65-18489 **Field 21B, 7D**
CFSTI Prices: HC$1.00 MF$0.50
California Univ., Berkeley.
REACTION KINETICS OF ACCELERATING FLAMES.
Final rept.,
by A. K. Oppenheim. 1964, 8p
Grant NsG10 59
NASA CR-57131
Distribution: No limitation.

Descriptors: (*Flames, Reaction kinetics).

N65-25008 **Field 21B, 1A**
CFSTI Prices: HC$3.00 MF$0.50
General Applied Science Labs., Westbury, N. Y.
EXPERIMENTAL RESULTS FOR THERMAL IGNITION OF HYDROGEN IN A SUPERSONIC VISCOUS FLOW.
Technical rept.,
by James Dunn. Dec 63, 57p Rept. no. TR-404
Contract NAS8 2686
NASA CR-62926
Distribution: No limitation.

Descriptors: (*Hydrogen, Ignition), (*Supersonic flow, Ignition).

N65-25373 **Field 21C, 22A**
CFSTI Prices: HC$4.00 MF$1.00
General Electric Co., Philadelphia, Pa. Missile and Space Div.
NAVIGATOR STUDY OF ELECTRIC PROPULSION FOR UNMANNED SCIENTIFIC MISSIONS. VOLUME I. MISSION ANALYSIS,
by H. Brown and J. Taylor. 1 Mar 65, 130p GE-65SD4296 (VOL 1)
Contract NAS3-2533
NASA CR-54324
Distribution: No limitation.

Descriptors: (*Electric propulsion, Mission profiles).

N65-27399 **Field 21H, 16D**
CFSTI Prices: HC$1.00 MF$0.50
National Aeronautics and Space Administration, Cleveland, Ohio. Lewis Research Center.
INVESTIGATION OF ATLAS SOLID FUEL RETARDING ROCKET DURING ATLAS-CENTAUR SEPARATION TESTS,
by Richard W. Heath, Henry Synor, Ralph F. Schmiedling, and John H. Povolny. Jul 65, 19p
NASA-TM-X-1119
Distribution: No limitation.

Descriptors: (*Retro rockets, Guided missiles (Surfaceto-surface), (*Guided missiles (Surface-to-surface), Retro rockets).

Identifiers: Atlas, Centaur.

N65-30599 **Field 21B**
CFSTI Prices: HC$2.00 MF$0.50
National Aeronautics and Space Administration, Cleveland, Ohio. Lewis Research Center.
INFLUENCE OF COMBUSTION PROCESS ON STABILITY,
by Richard J. Priem. Aug 65, 26p NASA-TN-D-2957
Distribution: No limitation.

Descriptors: (*Combustion, Stability).

N65-30639 **Field 21B, 21H**
CFSTI Prices: HC$4.00 MF$0.75
Michigan Univ., Ann Arbor.
A STUDY OF TWO PHASE DETONATION AS IT RELATES TO ROCKET MOTOR COMBUSTION INSTABILITY,
by J. A. Nicholls, E. K. Dabora, and K. W. Ragland. Aug 65, 95p
Contract NASr54 07
NASA CR-272
Distribution: No limitation.

Descriptors: (*Detonations, Rocket motors (Liquid propellant)), (*Combustion, Detonations), (*Rocket motors (Liquid propellant), Combustion).

Patent 3,212,256 **Field 21H, 21I**
CASE BONDING SYSTEM FOR CAST COMPOSITE PROPELLANTS.
Patent assigned to Navy,
by Henry T. Sampson. 19 Oct 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Rocket motors (Solid propellant), Bonding), (*Bonding, Rocket motors (Solid propellants)), Rocket cases, Solid rocket propellants, Castings, Acrylic resins, Sulfur compounds, Dioxides.

The rocket motor includes a metal casing, a thermoplastic liner bonded to the inside of the casing and a solid nitrasol propellant. A layer of methyl alphacyanoacrylate containing sulfur dioxide is provided between the grain and the liner and is bonded to each grain whereby the grain is secured to the casing.

Patent 3,213,110 **Field 21I**
SODIUM DECABORANE DIOXANE ADDUCT AND ITS PREPARATION.
Patent assigned to Air Force,
by Theodore L. Heying. 19 Oct 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Solid rocket propellant oxidizers, Oxanes), (*Sodium compounds, Decaboranes), (*Decaboranes, Solid rocket propellants), Complex compounds, Preparation, Patents.

Identifiers: Sodium decaborane dioxanes.

The solid sodium decaborane dioxane adduct may be incorporated with an oxidizer to yield a propellant suitable for rocket power plants and other jet propelled devices. The adduct is prepared by reacting sodium hydride with decaborane at from -40 to plus 60 degrees C. while the decaborane is dissolved in dioxane to form a precipitate of the adduct. The adduct is then recovered from the mixture.

Patent 3,215,352 **Field 21H**
BI-PROPELLANT METERING AND INJECTING VALVE.
Patent assigned to Navy,
by Daniel Meraz, Jr. 2 Nov 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Fuel meters, Bipropellants), (*Fuel injectors, Bipropellants), (*Valves, Combustion chambers), Variable area nozzles, Rocket propellants, Liquid rocket fuels, Liquid rocket oxidizers, Patents.

The variable orifices area injector is for metering and injecting liquid oxidant and liquid fuel into a rocket combustion chamber. A feature of the apparatus is that ribbon like flows produced by the orifice construction are very stable at extremely small flow rates.

Patent 3,217,689 **Field 21I, 14B**
PROPELLANT LEAK INDICATOR.
Patent assigned to Navy,
by Walter E. Knight and Joseph E. Carroll. 16 Nov 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Liquid rocket propellants, Leakage (Fluid)), (*Leak detectors, Liquid rocket propellants), Propellant tanks, Rocket motors, Patents, Design.

The device is installed in the end of a storage cylinder, in which a liquid propulsion rocket motor assembly is housed for detection of a leak in the liquid propulsion system from outside the storage cylinder. The fuel consists of a fuel component and an oxidizing component. Leakage is indicated by use of a circular absorbent pad impregnated with N-phenylanthranilic acid on one half and with mercurous chloride on the other half. The chemicals change color when contacted by components of the fuel.

22. SPACE TECHNOLOGY

N65-15480 **Field 22B**
CFSTI Prices: HC$5.00 MF$1.00
Virginia Polytechnic Inst., Blacksburg.
PROCEEDINGS OF THE CONFERENCE ON ARTIFICIAL SATELLITES, 12-6 AUGUST 1963, PART A.
Aug 63, 177p
NASA CR-60133
Distribution: No limitation.

Descriptors: (*Satellites (Artificial), Symposia).

N65-17075 **Field 22C**
CFSTI Prices: HC$1.00 MF$0.50
Lockheed Missiles and Space Do., Sunnyvale, Calif.
TRAJECTORIES LAUNCHED NORMAL TO THE EXLIPTIC,
by John V. Breakwell. Mar 63, 24p
Contract NAS8 2469
NASA CR-52610
Prepared for presentation to the International Astronautics Federation (14th) at Paris (France), 26 Sep-1 Oct 63. Distribution: No limitation.

Descriptors: (*Trajectories, Launching).

N65-17222 **Field 22B**
CFSTI Prices: HC$7.00 MF$1.75
Astro-Electronics Div., Radio Corp. of America, Princeton, N. J.
LUNAR ORBITER CAPSULE STUDY.
Final rept.
31 Jul 62, 333p AED-1542
Contracts NAS7 100, JPL950340
NASA CR-60748
Distribution: No limitation.

Descriptors: (*Lunar probes, Spacecraft components).

N65-18096 **Field 22B, 8N**
CFSTI Prices: HC$5.00 MF$1.00
Marshall Labs., Torrance, Calif.
MARINER A FLUXGATE MAGNETOMETER, MODEL ML 100-1.
Final Engineering rept.,
by R. Kobayashi, R. Morgan, D. Sassa, and G. Takahashi. 22 Feb 62, 160p ML-TN-2000.43
Contracts NAS7 100, JPL950036
NASA CR-57081
Distribution: No limitation.

Descriptors: (*Magnetometers, Spacecraft), (*Spacecraft, Magnetometers).

N65-18098 **Field 22A, 3B**
CFSTI Prices: HC$4.00 MF$1.00
Melpar, Inc., Falls Church, Va.
A DESIGN STUDY PROGRAM OF A POLAROGRAPHIC OXYGEN ANALYZER FOR OBTAINING DATA ON THE ATMOSPHERIC COMPOSITION OF MARS,
Final rept. 16 May - 15 Sep 62,
by R. T. Foley and G. Halpert. 1962, 121p
Contracts NAS7 100, JPL950284
NASA CR-57085
Distribution: No limitation.

Descriptors: (*Planetary atmospheres, Mars (Planet)), (*Polarographic analysis, Planetary atmospheres).

N65-18099 **Field 22B, 8N**
CFSTI Prices: HC$4.00 MF$0.75
Marshall Labs., Torrance, Calif.
MARINER R FLUXGATE MAGNETOMETER.
Final Engineering Rept.,
by R. Kobayashi and D. Sassa. 16 Mar 62, 112p ML-TN-2000.47
Contracts NAS7 100, JPL950185
NASA CR-57080
Distribution: No limitation.

Descriptors: (*Magnetometers, Spacecraft), (*Spacecraft, Magnetometers).

N65-18443 **Field 22A**
CFSTI Prices: HC$3.00 MF$0.50
Jet Propulsion Lab., Calif. Inst. of Tech., Pasadena.
SPACE EXPLORATION PROGRAMS AND SPACE SCIENCES.
31 Jan 65, 58p JPL-SPS-37-31 v2
Contract NAS7 100
NASA CR-57143
Distribution: No limitation.

Descriptors: (*Space probes, Research program administration), (*Astronautics, Research program administration).

N65-18450 **Field 22B**
CFSTI Prices: HC$1.00 MF$0.50
National Aeronautics and Space Administration, Langley Station, Va. Langley Research Center.
THE LUNAR ORBITER,
by I. Taback and E. A. Brummer. 1965, 21p
NASA-TM-X-56116
Presented at the AIAA Unmanned Spacecraft Meeting, Los Angeles, Calif., 1-3 Mar 65. Distribution: No limitation.

Descriptors: (*Lunar satellites, Photography), (*Lunar probes, Photography).

N65-18483 **Field 22B**
CFSTI Prices: HC$1.00 MF$0.50
RAND Corp., Santa Monica, Calif.
MAGNETOHYDRODYNAMIC RE-ENTRY CONTROL,
by M. C. Smith. Jan 65, 19p Memo. RM-4380-NASA
Contract NASr21
NASA CR-57124
Distribution: No limitation.

Descriptors: (*Reentry vehicles, Control), (*Magnetohydrodynamics, Control).

N65-18917 **Field 22B, 14E**
CFSTI Prices: HC$2.00 MF$0.50
Jet Propulsion Lab., Calif. Inst. of Tech., Pasadena.
A SYSTEM FOR LUNAR PHOTOGRAPHY AND DATA TRANSMISSION,
by John R. Scull. 28 May 60, 29p Technical release JPL-TR-34-142
Contract NASw6
NASA CR-57157
Presented at the International Symposium on Rocket and Astronautics, Tokyo (Japan), 24-28 May 60. Distribution: No limitation.

Descriptors: (*Lunar probes, Photography), (*Data transmission systems, Lunar probes).

N65-19270 **Field 22C, 1A**
CFSTI Prices: HC$1.00 MF$0.50
Jet Propulsion Lab., Calif. Inst. of Tech., Pasadena.
COMPARISONS OF EXPERIMENTAL AND THEORETICAL AERODYNAMIC HEATING RESULTS IN AIR-CARBON DIOXIDE MIXTURES,
by E. A. Laumann. 15 Jan 65, 15p JPL-TR-32-715
Contract NAS7 100
NASA CR-57215
Distribution: No limitation.

Descriptors: (*Aerodynamic heating, Air), (*Air, Carbon dioxide).

N65-19844 **Field 22B**
CFSTI Prices: HC$4.00 MF$1.00
National Aeronautics and Space Administration, Greenbelt, Md. Goddard Space Flight Center.
IMP D ;E FEASIBILITY STUDY,
by Paul O. Marcotte. Jan 64, 148p
NASA TMX-55166;
NASA S-672-64-4
Microfilmed from best available copy. Distribution: No limitation.

Descriptors: (*Lunar satellites, Scientific satellites), (*Scientific satellites, Lunar satellites).

N65-20421 **Field 22B, 18D**
CFSTI Prices: HC$3.00 MF$0.75
Parametrics, Inc., Waltham, Mass.
LOW LEVEL RADIATION ALTIMETER SYSTEM STUDY,
by L. L. Bird and C. A. Ziegler. 15 Oct 63, 81p
Contract NAS9 1490
NASA CR-57637
Distribution: No limitation.

Descriptors: (*Altimeters, Radiation measurement systems), (*Radiation measurement systems, Altimeters).

N65-20752 **Field 22C, 22A**
CFSTI Prices: HC$6.00 MF$1.25
Martin Co., Baltimore, Md.
EXTENSION OF EFFORT FOR LUNAR FLIGHT HANDBOOK.
Detailed technical rept.,
by F. A. Santora, R. G. Salinger, G. Kovatch, andJ. G. Gegner. Dec 64, 267p ER-13550-111
Contract NAS8 5031
NASA CR-57726
Distribution: No limitation.

Descriptors: (*Lunar trajectories, Manned spacecraft), (*Orbital trajectories, Instruction manuals).

N65-21336 **Field 22B, 17E**
CFSTI Prices: HC$2.00 MF$0.50
Optics Technology, Inc., Belmont, Calif.
FIBER OPTICS SYSTEMS FOR PLANETARY SCAN SYSTEM.
Final technical rept.
Jan 65, 38p
Contract NAS7 100
NASA CR-57977
Distribution: No limitation.

Descriptors: (*Optical scanning, Spacecraft), (*Fiber optics, Optical scanning).

N65-23166 **Field 22D**
CFSTI Prices: HC$3.00 MF$0.75
National Aeronautics and Space Administration, Moffett Field, Calif. Ames Research Center.
EVALUATION OF PILOT'S ABILITY TO STABILIZE A FLEXIBLE LAUNCH VEHICLE DURING FIRST-STAGE BOOST,
by Gordon H. Hardy, James V. West, and Robert W.Gunderson. May 65, 60p NASA-TN-D-2807
Prepared in cooperation with National Aeronautics and Space Administration, Huntsville, Ala. George C. Marshall Space Flight Center. Distribution: No limitation.

Descriptors: (*Launch vehicles (Aerospace), Stabilization), Pilots.

N65-24718 **Field 22A, 22B**
CFSTI Prices: HC$6.00 MF$1.25
Northrop Space Labs., Hawthorne, Calif.
APOLLO DOCKING TEST DEVICE DESIGN STUDY.
Final rept.
Dec 64, 240p NSL 64-360
Contract NAS9 3717
NASA CR-65014
Microfilmed from best available copy. Distribution: No limitation.

Descriptors: (*Spacecraft docking, Simulation).

Identifiers: Apollo.

N65-24898 **Field 22B, 9F**
CFSTI Prices: HC$2.00 MF$0.50
ADCOM, Inc., Cambridge, Mass.
COMMAND SYSTEMS STUDY FOR THE OPERATION AND CONTROL OF UNMANNED SCIENTIFIC SATELLITES. CLOSED-LOOP (FEEDBACK) VERIFICATION TECHNIQUES.
Quarterly progress rept. no. 2, 30 Sep-31 Dec 64, by J. Levy, A. M. Manders, and S. M. Sussman.
31 Dec 64, 41p
Contract NAS5-9705,
Task 2
NASA CR-62965
Distribution: No limitation.

Descriptors: (*Command + control systems, Scientific satellites), (*Scientific satellites, Command + control systems).

N65-24997 **Field 22B**
CFSTI Prices: HC$6.00 MF$1.50
General Electric Co., Philadelphia, Pa. Missile and Space Div.
VOYAGER SPACECRAFT SYSTEM STUDY (PHASE I-TITAN IIIC LAUNCH VEHICLE). VOLUME 11b.
Final rept.
7 Aug 64, 264p Rept. no. 64-SD-933
Contract 950847
NASA CR-62957
Distribution: No limitation.

Descriptors: (*Mars probes, Spacecraft components).

N65-25003 **Field 22A**
CFSTI Prices: HC$4.00 MF$0.75
IIT Research Inst., Chicago, Ill.
A STUDY OF INTERPLANETARY SPACE MISSIONS,
by D. L. Roberts. 15 Mar 65, 108p Rept. no. M-6
Contract NASr65 06
NASA CR-62889
Distribution: No limitation.

Descriptors: (*Interplanetary trajectories, Astronautics).

N65-25372 **Field 22B**
CFSTI Prices: HC$1.00 MF$0.50
GM Defense Research Labs., Santa Barbara, Calif. Aerospace Operations Dept.
EXPERIMENTAL INVESTIGATIONS OF SIMULATED METEOROID DAMAGE TO VARIOUS SPACECRAFT STRUCTURES.
Progress rept. no. 3, 31 Jan 65,
by C. J. Maiden, J. W. Gehring, A. R. McMillan, andR. E. Sennett. 1 Feb 65, 6p
Contract NAS9 3081
NASA CR-65037
Distribution: No limitation.

Descriptors: (*Spacecraft, Damage), (*Meteorites, Damage).

N65-25547 **Field 22D**
CFSTI Prices: HC$1.00 MF$0.50
National Aeronautics and Space Administration, Langley Station, Va. Langley Research Station.
TRANSONIC AERODYNAMIC CHARACTERISTICS OF A SATURN IB-APOLLO LAUNCH VEHICLE WITH VARIOUS UPPER-STAGE CONFIGURATIONS,
by C. Robert Carter. Jun 65, 24p NASA-TN-D-2829
Distribution: No limitation.

Descriptors: (*Launch vehicles (Aerospace), Aerodynamic characteristics).

Identifiers: Saturn space vehicle, Apollo.

N65-27363 **Field 22C, 22A**
CFSTI Prices: HC$1.00 MF$0.50
National Aeronautics and Space Administration, Greenbelt, Md. Goddard Space Flight Center.
SIGNAL LEVEL PERFORMANCE OF THE INTERFEROMETER REENTRY TRACKER,
by V. R. Simas. 10 May 65, 20p NASA-TMX-55225, X-523-65-199
Distribution: No limitation.

Descriptors: (*Radio interferometers, Space navigation), (*Atmosphere entry, Navigational aids).

N65-27379 **Field 22A, 22D, 22C**
CFSTI Prices: HC$2.00 MF$0.50
Jet Propulsion Lab., Calif. Inst. of Tech., Pasadena.
DSIF: GOLDSTONE.
Technical memo.
1965, 32p Rept. no. TM-33-05
Contract NAS7 100
NASA CR-6363
Distribution: No limitation.

Descriptors: (*Space communication systems, Ground support equipment), (*Satellite tracking systems, Interplanetary trajectories).

N65-27380 **Field 22A, 22D, 22C**
CFSTI Prices: HC$1.00 MF$0.50
Jet Propulsion Lab., Calif. Inst. of Tech., Pasadena.
DSIF: TIDBINBILLA.
Technical memo.
1965, 24p Rept. no. TM-33-207
Contract NAS7 100
NASA CR-63632
Distribution: No limitation.

Descriptors: (*Space communication systems, Ground support equipment), (*Satellite tracking systems, Interplanetary trajectories).

N65-27619 **Field 22B, 21C, 10B**
CFSTI Prices: HC$5.00 MF$1.00
Westinghouse Electric Corp., Lima, Ohio. Aerospace Electrical Div.
SPACE ELECTRIC POWER SYSTEMS STUDY: D-C TO D-C CONVERTERS FOR NUCLEAR-THERMIONIC ENERGY SOURCES,
by E. F. Swiderski, R. D. Jessee, and G. E. Gerecke. May 65, 174p WAED65-28E
Contract NAS3 6011
NASA CR-54415
Distribution: No limitation.

Descriptors: (*Thermionic converters, Spacecraft), (*Electric propulsion, Spacecraft).

N65-30699 **Field 22C**
CFSTI Prices: HC$1.00 MF$0.50
National Aeronautics and Space Administration, Houston, Tex. Manned Spacecraft Center.
ON THE USE OF APPROXIMATE ANALYTICAL SOLUTIONS IN SOLVING OPTIMUM TRAJECTORY PROBLEMS,
by Donald J. Jezewski. Aug 65, 14p NASA-TN-D-2961
Distribution: No limitation.

Descriptors: (*Trajectories, Optimization).

N65-30736 **Field 22B, 16D**
CFSTI Prices: HC$1.00 MF$0.50
National Aeronautics and Space Administration, Greenbelt, Md. Goddard Space Flight Center.
THE PRESSURE PROFILE OF A ROCKET PAYLOAD AFTER NOSE-CONE EJECTION,
by N. McIlwraith and D. L. Lind. Aug 65, 12p NASA-TN-D-2964
Distribution: No limitation.

Descriptors: (*Rockets, Aerodynamics), (*Aerodynamics, Rockets).

N65-31573 **Field 22D**
CFSTI Prices: HC$4.00 MF$0.75
Sperry Gyroscope Co., Carle Place, N. Y.
DEVELOPMENT OF LAUNCH VEHICLE MALFUNCTION EFFECTS MODEL.
Aug 65, 53p
Contract NAS8 11229
NASA CR-288
Distribution: No limitation.

Descriptors: (*Launch vehicles (Aerospace), Malfunctions).

N65-31575 Field 22A
CFSTI Prices: HC$5.00 MF$1.00
National Aeronautics and Space Administration, Huntsville, Ala. George C. Marshall Space Flight Center.
ASCENT FROM THE LUNAR SURFACE,
by Rowland E. Burns and Larry G. Singleton. Aug 65, 159p NASA-TN-D-1644
Distribution: No limitation.

Descriptors: (*Lunar craft, Take-off).

N65-32750 Field 22B
CFSTI Prices: HC$3.00 MF$0.75
General Motors Corp., Santa Barbara, Calif.
THIN SHEET IMPACT,
by C. J. Maiden, A. R. McMillan, and R. E. Sennett, III. Sep 65, 65p
Contract NAS9 3081
NASA CR-295
Distribution: No limitation.

Descriptors: (*Spacecraft, Meteors), (*Meteors, Damage).

NAA-SR-11103 Field 22C, 21F, 18N
CFSTI Prices: HC$2.00 MF$0.50
Atomics International, Canoga Park, Calif.
DISINTEGRATION AND DISPERSION OF THE SNAP 10A REACTOR UPON RETURN FROM SATELLITE ORBIT,
by R. D. Elliott. 1 Sep 65, 45p
Contract AT (11-1)-GEN-8
Distribution: No limitation.

Descriptors: (*Auxiliary power plants, Spacecraft), (*Spacecraft, Nuclear propulsion).

Patent 3,212,564 Field 22B, 13D
HEAT CONDUCTIVE RESILIENTLY COMPRESSIBLE STRUCTURE FOR SPACE ELECTRONICS PACKAGE MODULES.
Patent assigned to NASA,
by Harry M. Passman and Frederick W. Johnson. 19 Oct 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Modules (Electronic), Cooling), Spaceborne, Packaging, Heat transfer, Compressive properties, Heat sinks, Sheets, Berllium alloys, Copper alloys, Plating, Silver.

The cooling apparatus is associated with shelf mounted electronic equipment for conducting heat from the equipment to be cooled to a mounting rack shelf, acting as a heat sink. Multiple path thermal conductive pads are used to bridge the space between the equipment and the heat sink. Sheets of beryllium copper plated with a thin coating of silver are used to conduct the heat.

Patent 3,215,365 Field 22C, 22B
SPACECRAFT PROPULSION CONCEPT.
Patent assigned to Navy,
by Theodore Wyatt, Charles J. Swet andJohn Dassoulas. 2 Nov 65
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

Descriptors: (*Maneuvering satellites, Orbital trajectories), Spacecraft, Space propulsion, Tracking, Satellite attitude, Terrestrial magnetism, Launch vehicles (Aerospace), Patents.

The method for altering the orbit of a space vehicle includes launching, reduction of spinning, orienting the vehicle with the magnetic field through which it is moving, tracking the vehicle to find its orbital parameters, determining the angular relationship between the vehicle and its flight path by using the parameters, spinning the vehicle to gyrocopically preserve a particular angular relationship from one position in its orbit to a later position, and changing the velocity vector of the vehicle upon reaching the last mentioned position.

SC-RR-65-9 Field 22B, 18B
CFSTI Prices: HC$3.00 MF$0.75
Sandia Corp., Albuquerque, N. Mex.
CONTAINMENT CAPSULE IMPACT SAFETY STUDY, PHASE A.
Progress rept.,
by C. W. Young, C. H. Stoneking, and J. L. Colp. Jul 65, 66p
Contract AT (29-1)-789
Distribution: No limitation.

Descriptors: (*Radioactivity isotopes, Containers), (*Containers, Impact shock), Testing, Spacecraft, Power supplies.

SUBJECT INDEX

The fields indicated here apply only to the Other Research Reports and Related Material Section (on blue paper).

DESCRIPTOR	FLD	ACCESS. NO.
ALLOYS	20	PAT-3215569
ALPHA PARTICLE REACTIONS	20	PB-168 625
AMPLIFIERS	9	PB-168 664
ANALOG-DIGITAL COMPUTERS	9	AD-465 935
ASTRONAUTS	6	PAT-3218103
ATTENUATORS	19	AD-460 450
	9	PAT-3215927
	9	PB-168 587
AUDIOMETRY	9	PB-168 667
BAND-PASS FILTERS	9	PB-168 633
BONDING	21	PAT-3212256
CARRIERS (SEMICONDUCTORS)	20	PAT-3212939
CATHODES	10	AD-289 503
CERMETS	13	PAT-3213163
CHANNEL SELECTORS	9	PAT-3214984
COAXIAL FILTERS	9	PB-168 633
COMMAND + CONTROL SYSTEMS	9	PB-168 581
COMPILERS	9	AD-419 103
CONTINUOUS WAVE RADAR	17	PAT-3216010
DATA PROCESSING SYSTEMS	9	AD-404 623
DATA TRANSMISSION SYSTEMS	17	PAT-3213200
DECABORANES	21	PAT-3213110
DECODING	9	PB-168 581
DEPTH FINDING	17	PAT-3213409
DEPTH INDICATORS	17	PAT-3213409
DIRECTION FINDING	17	PAT-3217327
DISCONNECT FITTINGS	9	PAT-3210800
	13	PAT-3215970
ELECTRIC SWITCHES	9	PAT-3215865
ELECTRICAL NETWORKS	9	PB-169 618
ELECTRODEPOSITION	13	AD-459 652
ELECTRODES	10	AD-289 503
ELECTROMAGNETIC SHIELDING	19	AD-458 073
	19	AD-460 450
ENGINES + MOTORS	9	PB-168 588
ENGLISH LANGUAGE	5	PB-168 548
	5	PB-168 577
EXPLOSIVE INITIATORS	19	AD-452 033
EXPLOSIVES INITIATORS	19	AD-458 073
	19	AD-460 450
FILMS	11	AD-450 502
FLAT PLATE MODELS	20	AD-452 336
FLOWMETERS	14	PAT-3214973
FLUID AMPLIFIERS	13	PAT-3217727
FREQUENCY MULTIPLIERS	9	PB-168 580
FUEL CELLS	10	AD-289 503
	10	PAT-3208883
FUEL INJECTORS	21	PAT-3215352
FUEL METERS	21	PAT-3215352
GAMMA EMISSION	18	AD-450 599
GAS-COOLED REACTORS	18	PB-168 624
GEARS	11	AD-450 502
GOLD ALLOYS	13	AD-459 652
GRAMMARS	5	PB-168 577
GRAPHICS	9	AD-404 623
GUIDED MISSILE LAUNCHERS	19	PAT-3215040
HIGH-PRESSURE RESEARCH	11	AD-460 483
HOMING DEVICES	17	PAT-3215368
HOSPITALS	6	PB-168 616
HYDROGEN	10	PAT-3208883
	7	PB-168 626
HYPERVELOCITY GUNES	19	PAT-3212208
IDENTIFICATION SYSTEMS	17	PAT-3213451
INDIUM ALLOYS	20	PAT-3212939
INFORMATION RETRIEVAL	9	AD-404 623
	5	PB-168 598
LAMINAR BOUNDARY LAYER	20	AD-452 336
LAND MINES	19	PAT-3216354
LASERS	17	PAT-3215842
LEAK DETECTORS	21	PAT-3217689
LIBRARIES	5	PB-168 599
LIGHT COMMUNICATION SYSTEMS	17	PAT-3215842
LIQUID ROCKET PROPELLANTS	21	PAT-3217689
LUBRICATION	11	AD-460 502
LUMINESCENCE	7	PAT-3212441
MACHINE TRANSLATION	5	PB-168 577
MANEUVERING SATELLITES	22	PAT-3215365
MARINE METEOROLOGY	4	PB-168 392
MECHANICAL WORKING	13	PAT-3213163
MICROWAVE OSCILLATORS	9	PAT-3213389
MODULES (ELECTRONIC)	22	PAT-3212564
NAVAL VESSELS (COMBATANT)	13	AD-437 233
NOISE GENERATORS	9	PB-168 665
OPERATIONS RESEARCH	5	PB-168 599
OSCILLOSCOPES	9	PB-168 666
OXYGEN	10	AD-289 503
PHASE CONTROL DEVICES	9	PAT-3215865
PLASMA MEDIUM	20	PB-168 623
PLUTONIUM	18	PAT-3213002
POLYMERS	11	AD-460 483
POTENTIAL SCATTERING	20	PB-168 620
	20	PB-168 620
POWERS SUPPLIES	9	PB-168 664
PREAMPLIFIERS	9	PB-168 664
PROGRAMMING (COMPUTERS)	6	PB-168 616
PROGRAMMING LANGUAGES	9	AD-419 103
	9	AD-465 935
RADAR EQUIPMENT	17	PAT-3213451
RADAR SCANNING	17	PAT-3213455
RADAR TRACKING	17	PAT-3213455
RADIATION TOLERANCE	6	PB-168 619
RADIO EQUIPMENT	17	PAT-3217327
RADIO RECEIVERS	9	PB-168 580
RADIO TRANSMITTERS	9	PB-168 586
RADIOFREQUENCY	9	PB-168 657
RANGE FINDING	17	PAT-3216010
REACTOR CORES	18	PAT-3215608
REACTOR FUEL CLADDING	18	PB-168 624
REACTOR FUEL ELEMENTS	18	PAT-3215606
	18	PAT-3215607
	18	PAT-3216903
REACTOR FUEL PROCESSING	18	PAT-3213032
	18	PAT-3213161
	18	PB-168 621
REACTOR SAFETY SYSTEMS	18	PAT-3215606
REACTOR SHIELDING MATERIALS	18	PAT-3216903
RELAXATION OSCILLATORS	13	PAT-3217727
RELAYS	9	PB-168 585
RESEARCH PROGRAM ADMINISTRATION	5	PB-168 595
ROCKET MOTORS (SOLID PROPELLANT)	21	PAT-3212256
SAFETY HARNESS	6	PAT-3218103
SCHEDULING	5	PB-168 595
SEARCH RADAR	17	AD-430 134
SEMICONDUCTORS	20	PAT-3212939
SERMECHANISMS	13	PAT-3217308
SINGLE CRYSTALS	13	AD-459 652
SINTERING	18	PAT-3213032
	18	PAT-3213161
SODIUM COMPOUNDS	21	PAT-3213110
SOLID ROCKET PROPELLANT OXIDIZERS	21	PAT-3213110
STATISTICAL PROCESSES	4	PB-168 392
SUPERCONDUCTORS	20	PAT-3215569
SUSPENSION DEVICES	19	PAT-3212469
SYNTAX	5	PB-168 548
SYSTEMS ENGINEERING	5	PB-168 599
TARGET DRONES	9	PB-168 581
	9	PB-168 588
TARGET RECOGNITION	17	PAT-3213451
TELEGRAPH SYSTEMS	17	PAT-3213200
TELEPHONE COMMUNICATION SYSTEMS	17	PAT-3213200
TEST EQUIPMENT (ELECTRONICS)	9	PAT-3215996
	9	PB-168 657
	9	PB-168 665
	9	PB-168 666
	9	PB-168 667
TEST SETS	9	PB-168 585
	9	PB-168 586
	9	PB-168 588
TORPEDOES	19	PAT-3212469
TRACKING	17	PAT-3217327
TRANSDUCERS	9	AD-465 867
	13	PAT-3217306
TRANSISTOR AMPLIFIERS	9	AD-466 136
TRANSISTORS	9	AD-466 136
TRANSPORT PLANES	1	PAT-202839
TROPICAL CYCLONES	4	PB-168 392
TUNING DEVICES	9	PAT-3214984
UPPER ATMOSPHERE	7	PAT-3212441
URANIUM	18	PAT-3213002
	18	PB-168 621
	7	PB-168 626
URANIUM COMPOUNDS	18	PAT-3213032
	18	PAT-3213161
	7	PB-168 626
VALVES	21	PAT-3215352
VARIABLE-SPEED DRIVES	13	PAT-3214999
VOLTMETERS	9	PB-168 657
WAVEGUIDE SWITCHES	17	PAT-3213455
WEATHER FORECASTING	4	PB-168 392

PERSONAL AUTHOR INDEX

The fields indicated here apply only to the Other Research Reports and Related Material Section (on blue paper).

PERSONAL AUTHOR	FLD	ACCESS. NO.
ALLEN, R. H.	19	PAT-3215040
ALLEN, T. J.	5	PB-168 595
ALPERS, F. C.	17	PAT-3213451
ANDERSON, A. E.	1	PAT-202839
ANDRIEN, M. P. JR.	5	PB-168 595
ARAKAWA, H.	4	PB-168 392
BAILEY, P. C.	17	PAT-3213409
BEARCE, H. P.	19	PAT-3216354
BENEDICT, G. E.	18	PAT-3213002
BENOIT, R. C. JR.	17	PAT-3213200
BESSIS, D.	20	PB-168 620
	20	PB-168 620
BETTERTON, J. O. JR.	20	PAT-3215569
BOBROW, D. G.	5	PB-168 548
BOYCE, W. C.	6	PAT-3218103
BRAIN, A. E.	9	AD-404 623
BREWER, J.	5	PB-168 577
BRITE, D. W.	13	PAT-3213163
BROWSTEIN, J.	9	PAT-3215927
BUNCH, W. L.	18	PAT-3216903
CAMPI, M.	9	PAT-3213389
CARLBERG, R. E.	19	PAT-3215040
CARROLL, J. E.	21	PAT-3217689
CHAPIN, W. E.	9	AD-465 867
CHEVALLIER, J.	7	PB-168 626
CHUA, L. O.	9	PB-168 618
COOK, W. L.	1	PAT-202839
COURTRIGHT, B. F. JR.	5	PB-168 599
CRAIG, R. A.	18	PAT-3213161
CROUTHAMEL, C. E.	10	PAT-3208883
DARRIULAT, P.	20	PB-168 625
DASSOULAS, J.	22	PAT-3215365
DAUGHERTY, J. C.	1	PAT-202839
DAVIS, J. L.	20	PAT-3212939
DE LASTEYRIE, B.	18	PB-168 621
DOUMERC, J.	18	PB-168 621
EASTON, D. S.	20	PAT-3215569
FITZGERALD, C. H.	19	PAT-3212469
FOLLIN, J. W. JR.	17	PAT-3215368
FORSEN, G. E.	9	AD-404 623
FUNK, J. E.	9	AD-465 935
GAUSSENS, J.	18	PB-168 621
GELLER, R.	20	PB-168 623
GIMBER, G. A.	17	PAT-3213409
GOLOMB, D. S.	7	PAT-3212441
GOODMAN, R. M. JR.	17	PAT-3213455
GRIMME, B. H. JR.	9	PAT-3215865
GRUBB, W. C. JR.	17	PAT-3217327
GUENTHER, R. W.	18	PAT-3215608
GUILLOU, S. LE.	6	PB-168 619
HALL, D. J.	9	AD-404 623
HAMMOND, J. P.	18	PAT-3213032
HEINRICH, R. R.	10	PAT-3208883
HEYING, T. L.	21	PAT-3213110
HILL, K. A.	13	AD-459 652
HILLMAN, D. J.	5	PB-168 598
HOTZ, H. P.	18	AD-460 599
HURLEY, J. P.	18	AD-460 599
INGERMAN, P. Z.	9	AD-419 103
JOHNSON, F. W.	22	PAT-3212564
JONES, J. L. JR.	1	PAT-202839
KERSHAW, R. E.	19	PAT-3212469
KNEIP, G. K. JR.	20	PAT-3215569
KNIGHT, W. E.	21	PAT-3217689
KOENIG, D. G.	1	PAT-202839
KORDTKIN, I. M.	13	AD-437 233
KOSSAN, R. L.	19	PAT-3215040
KOZIEN, F.	17	PAT-3213200
	17	PAT-3213200
LACKEY, M. E.	18	PAT-3215607
LAPP, R. H.	13	PAT-3214999
LEON, B. J.	9	PB-168 618
LESTER, R. A.	14	PAT-3214973
LOGAN, F. E.	20	AD-462 336
MATHIESEN, J. M.	18	AD-460 599
MAXWELL, R. F. JR.	13	PAT-3217308
MCCULLOCH, C. R.	13	PAT-3215970
MERAZ, D. JR.	21	PAT-3215352
MUNRO, G. C.	17	PAT-3215368
MYER, E. P.	6	PB-168 616
NAVARRO, R. W.	9	PAT-3210800
NILSSON, N. J.	9	AD-404 623
O'BRIEN, V.	20	AD-462 336
PASSMAN, H. M.	22	PAT-3212564
PATCH, R. J.	9	PAT-3215996
PERSECHINO, M. A.	19	PAT-3212208
RAJEWSKI, T.	9	PAT-3210800
RIDINGS, T. L.	11	AD-460 502
ROESCHKE, C. W.	17	PAT-3216010
ROGUIN, A.	18	PB-168 624
ROSENBERG, N. W.	7	PAT-3212441
SAMPSON, H. T.	21	PAT-3212256
SANDLER, Y. L.	10	AD-289 503
SAUTTER, F. K.	13	AD-459 652
SCAARBROUGH, J. O.	20	PAT-3215569
SCHLEMMER, H. V.	19	PAT-3212208
SCHWARTZ, M.	9	PAT-3215996
SILVESTER, A. G.	18	PAT-3215606
SPYROPOULOS, C. E.	13	PAT-3217727
SUMP, K. R.	13	PAT-3213163
SWET, C. J.	22	PAT-3215365
THOMAS, N. E.	17	PAT-3215842
THOMPSON, J. A.	17	PAT-3213200
THOMPSON, J. H.	14	PAT-3214973
ULRICH, E.	19	PAT-3212469
VOGELMAN, J. H.	17	PAT-3213200
WALLBRECH, E. C.	9	PAT-3214984
WARFIELD, R. W.	11	AD-460 483
WEBER, L. H.	19	PAT-3215040
WERMAGER, P. G.	19	PAT-3215040
WILLMANN, D. F.	9	PAT-3214984
WITTE, J. J.	9	PAT-3213389
WOOD, W. T.	9	PAT-3214984
WYATT, T.	22	PAT-3215365

CORPORATE SOURCE INDEX

CORPORATE SOURCE	FLD	ACCESS. NO.
ALFRED P. SLOAN SCHOOL OF MANAGEMENT, MASS. INST. OF TECH., CAMBRIDGE.	5	PB-168 595
ARNOLD ENGINEERING DEVELOPMENT CENTER, ARNOLD AIR FORCE STATION, TENN.	11	AD-460 502
BOEING CO., SEATTLE, WASH. AERO-SPACE DIV.	9	PB-168 657
	9	PB-168 664
	9	PB-168 665
	9	PB-168 666
	9	PB-168 667
BOLT, BERANEK AND NEWMAN, INC., CAMBRIDGE, MASS.	5	PB-168 548
BUNKER-RAMO CORP., CANOGA PARK, CALIF.	5	PB-168 577
BUREAU OF NAVAL WEAPONS, WASHINGTON, D. C.	9	PB-168 580
	9	PB-168 581
	9	PB-168 585
	9	PB-168 586
	9	PB-168 587
	9	PB-168 588
	9	PB-168 633
COMMISSARIAT A L'ENERGIE ATOMIQUE, FONTENAY-AUX-ROSES (FRANCE). CENTRE D'ETUDES NUCLEAIRES.	6	PB-168 619
COMMISSARIAT A L'ENERGIE ATONIQUE, GRENOBLE (FRANCE). CENTRE D'ETUDES NUCLEAIRES.	7	PB-168 626
COMMISSARIAT A L'ENERGIE ATOMIQUE, PARIS (FRANCE).	18	PB-168 621
COMMISSARIAT A L'ENERGIE ATOMIQUE, SACLAY (FRANCE). CENTRE D'ETUDES NUCLEAIRES.	20	PB-168 620
	20	PB-168 623
	18	PB-168 624
	20	PB-168 625
DAVID TAYLOR MODEL BASIN, WASHINGTON, D. C.	13	AD-437 233
FRANK J. SEILER RESEARCH LAB., AIR FORCE ACADEMY, COLO.	9	AD-465 935
GENISTRON, INC., COLLEGE PARK, MD. APPLIED RESEARCH DIV.	19	AD-458 073
	19	AD-460 450
	19	AD-462 033
JOHNS HOPKINS UNIV., BALTIMORE, MD.	5	PB-168 599
JOHNS HOPKINS UNIV., SILVER SPRING, MD. APPLIED PHYSICS LAB.	20	AD-462 336
LEHIGH UNIV., BETHLEHEM, PA.	5	PB-168 598
METEOROLOGICAL RESEARCH INST., TOKYO (JAPAN).	4	PB-168 392
MOORE SCHOOL OF ELECTRICAL ENGINEERING, UNIV. OF PENNSYLVANIA, PHILADELPHIA.	9	AD-419 103
NAVAL ORDNANCE LAB., WHITE OAK, MD.	11	AD-460 483
NAVAL RADIOLOGICAL DEFENSE LAB., SAN FRANCISCO, CALIF.	18	AD-460 599
PURDUE UNIV., LAFAYETTE, IND. SCHOOL OF ELECTRICAL ENGINEERING.	9	PB-168 618
RADIO CORP. OF AMERICA, MOORESTOWN, N. J. MISSILE AND SURFACE RADAR DIV.	17	AD-430 134
RADIO CORP. OF AMERICA, SOMERVILLE, N. J. ELECTRONIC COMPONENTS AND DEVICES.	9	AD-466 136
STANFORD RESEARCH INST., MENLO PARK, CALIF.	9	AD-404 623
SYSTEM DEVELOPMENT CORP., SANTA MONICA, CALIF.	6	PB-168 616
TRANSDUCER INFORMATION CENTER, BATTELLE MEMORIAL INST., COLUMBUS, OHIO.	9	AD-465 867
WATERVLIET ARSENAL, N. Y. BENET LABS.	13	AD-459 652
WESTINGHOUSE RESEARCH LABS., PITTSBURGH, PA.	10	AD-289 503

798-319 O - 68 - 16

CONTRACT NUMBER INDEX

The fields indicated here apply only to the Other Research Reports and Related Material Section (on blue paper).

CONTRACT NUMBER	FLD	ACCESS. NO.
CONTRACT AF33(615)-1819	9	AD-465 867
CONTRACT AF49(638)-951	9	AD-419 103
CONTRACT ARPA ORDER-226-61	10	AD-289 503
CONTRACT CWB-9933	4	PB-168 392
CONTRACT DA-28-043-AMC-003 14E	9	AD-466 136
CONTRACT DA-3A99-22-001-02	9	AD-404 623
CONTRACT DA-31-124-ARO(D)-98	9	AD-419 103
CONTRACT DA-36-039-SC-7434 3	9	AD-404 623
CONTRACT DA-36-039-SC-8913 8	10	AD-289 503
CONTRACT NOBSR-89481	17	AD-430 134
CONTRACT NOW-62-0604-C	20	AD-462 336
CONTRACT NSF-C372	5	PB-168 577
CONTRACT N123(62861)35056A	9	PB-168 657
	9	PB-168 664
	9	PB-168 665
	9	PB-168 666
	9	PB-168 667
CONTRACT N178-8290	19	AD-458 073
	19	AD-460 450
	19	AD-462 033
GRANT NSF-G-14096	9	AD-419 103
GRANT NSF-GK-26	9	PB-168 618
GRANT NSF-GN-233	5	PB-168 595
GRANT NSF-GN-31	5	PB-168 599
GRANT NSF-GN-353	5	PB-168 595
GRANT NSF-GP-95	9	AD-419 103
GRANT NSF-G24070	5	PB-168 598
GRANT NSG-235-62	5	PB-168 595
SRI-3192	9	AD-404 623

ACCESSION/REPORT NUMBER INDEX

ACCESSION/REPORT NO.	FLD	ACCESS. NO.
AD-289 503	10	AD-289 503
AD-404 623	9	AD-404 623
AD-419 103	9	AD-419 103
AD-430 134	17	AD-430 134
AD-437 233	13	AD-437 233
AD-458 073	19	AD-458 073
AD-459 652	13	AD-459 652
AD-460 450	19	AD-460 450
AD-460 483	11	AD-460 483
AD-460 502	11	AD-460 502
AD-460 599	18	AD-460 599
AD-462 033	19	AD-462 033
AD-462 336	20	AD-462 336
AD-465 867	9	AD-465 867
AD-465 935	9	AD-465 935
AD-466 136	9	AD-466 136
AEDC-TR-65-45	11	AD-460 502
CEA-R-2753	20	PB-168 620
	20	PB-168 620
CEA-R-2776	6	PB-168 619
CEA-R-2777	7	PB-168 626
CEA-R-2784	18	PB-168 624
CEA-R-2786	20	PB-168 625
CEA-R-2853	20	PB-168 623
CEA-R-2866	18	PB-168 621
MS-63-X4	9	AD-419 103
NAVWEPS-17-20-BCK-5	9	PB-168 580
NAVWEPS-17-20A-32	9	PB-168 657
NAVWEPS-17-20AE-37	9	PB-168 664
NAVWEPS-17-20AG-83	9	PB-168 665
NAVWEPS-17-20AP-06	9	PB-168 667
NAVWEPS-17-20AW-30	9	PB-168 666
NAVWEPS-17-20BCK-3	9	PB-168 585
NAVWEPS-17-20BCK-4	9	PB-168 586
NAVWEPS-17-20BCK-7	9	PB-168 581
NAVWEPS-17-20GA-01	9	PB-168 587
NAVWEPS-17-20GN-05	9	PB-168 633
NAVWEPS-17-20QT-08	9	PB-168 588
NMRP-43	4	PB-168 392
NOLTR-64-243	11	AD-460 483
PATENT DESIGN-202839	1	PAT-202839
PATENT-3208883	10	PAT-3208883
PATENT-3210800	9	PAT-3210800
PATENT-3212208	19	PAT-3212208
PATENT-3212256	21	PAT-3212256
PATENT-3212441	7	PAT-3212441
PATENT-3212469	19	PAT-3212469
PATENT-3212564	22	PAT-3212564
PATENT-3212930	20	PAT-3212939
PATENT-3213002	18	PAT-3213002
PATENT-3213032	18	PAT-3213032
PATENT-3213110	21	PAT-3213110
PATENT-3213161	18	PAT-3213161
PATENT-3213163	13	PAT-3213163
PATENT-3213200	17	PAT-3213200
PATENT-3213389	9	PAT-3213389
PATENT-3213409	17	PAT-3213409
PATENT-3213451	17	PAT-3213451
PATENT-3213455	17	PAT-3213455
PATENT-3214973	14	PAT-3214973
PATENT-3214984	9	PAT-3214984
PATENT-3214999	13	PAT-3214999
PATENT-3215040	19	PAT-3215040
PATENT-3215352	21	PAT-3215352
PATENT-3215365	22	PAT-3215365
PATENT-3215368	17	PAT-3215368
PATENT-3215569	20	PAT-3215569
PATENT-3215606	18	PAT-3215606
PATENT-3215607	18	PAT-3215607
PATENT-3215608	18	PAT-3215608
PATENT-3215842	17	PAT-3215842
PATENT-3215865	9	PAT-3215865
PATENT-3215927	9	PAT-3215927
PATENT-3215970	13	PAT-3215970
PATENT-3215996	9	PAT-3215996
PATENT-3216010	17	PAT-3216010
PATENT-3216354	19	PAT-3216354
PATENT-3216903	18	PAT-3216903
PATENT-3217308	13	PAT-3217308
PATENT-3217327	17	PAT-3217327
PATENT-3217689	21	PAT-3217689
PATENT-3217727	13	PAT-3217727
PATENT-3218103	6	PAT-3218103
PB-168 392	4	PB-168 392
PB-168 548	5	PB-168 548
PB-168 577	5	PB-168 577
PB-168 580	9	PB-168 580
PB-168 581	9	PB-168 581
PB-168 585	9	PB-168 585
PB-168 586	9	PB-168 586
PB-168 587	9	PB-168 587
PB-168 588	9	PB-168 588
PB-168 595	5	PB-168 595
PB-168 598	5	PB-168 598
PB-168 599	5	PB-168 599
PB-168 616	6	PB-168 616
PB-168 618	9	PB-168 618
PB-168 619	6	PB-168 619
PB-168 620	20	PB-168 620
	20	PB-168 620
PB-168 621	18	PB-168 621
PB-168 623	20	PB-168 623
PB-168 624	18	PB-168 624
PB-168 625	20	PB-168 625
PB-168 626	7	PB-168 626
PB-168 633	9	PB-168 633
PB-168 657	9	PB-168 657
PB-168 664	9	PB-168 664
PB-168 665	9	PB-168 665
PB-168 666	9	PB-168 666
PB-168 667	9	PB-168 667
SP-812/001/00	6	PB-168 616
SRL-65-1	9	AD-465 935
TG-658	20	AD-462 336
TIC-SUMMARY-1	9	AD-465 867
TR-EE65-18	9	PB-168 618
TRANS-310	13	AD-437 233
TT-65-64092	13	AD-437 233
USNADL-TR-817	18	AD-460 599
WVT-6510	13	AD-459 652
131-65	5	PB-168 595
2400-5754-2	19	AD-458 073
2400-5754-3	19	AD-460 450
2400-5754-4	19	AD-462 033

FORM NBS-811 (2-68) U.S. DEPARTMENT OF COMMERCE NATIONAL BUREAU OF STANDARDS

CLEARINGHOUSE ORDER FORM

TO: Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia, 22151

SHIP TO *(If different than sold to)*

SOLD TO *(Name or firm)*

STREET ADDRESS

CITY AND STATE *(Include zip code)* OR CITY AND COUNTRY

DEPOSIT ACCOUNT NO. *(If any)*

YOUR ORDER NO.

DATE

ACCESSION/REPORT NUMBER OR TITLE	TYPE HC/MF*	QUANTITY	UNIT PRICE	TOTAL PRICE	FOR CFSTI USE: ACTION CODE	VERIFIED BY	EXTRACTED BY	EXTRACTED DATE

IF ADDITIONAL SPACE IS NEEDED, PLEASE ATTACH ANOTHER ORDER FORM

PLEASE INDICATE METHOD OF CASH PAYMENT ☐ CHECK ☐ MONEY ORDER →

MAKE CHECK OR MONEY ORDER PAYABLE TO NATIONAL BUREAU OF STANDARDS - CFSTI

AMOUNT ENCLOSED

$

* Type of copy - **HC** stands for Hard Copy
MF stands for Microfiche

USCOMM-DC 26204-P68

FO
(2-

TO

SHI

PLE

MAK

* Ty

FORM NBS-811 (2-68) U.S. DEPARTMENT OF COMMERCE NATIONAL BUREAU OF STANDARDS

CLEARINGHOUSE ORDER FORM

TO: Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia, 22151

SHIP TO *(If different than sold to)*

SOLD TO *(Name or firm)*

STREET ADDRESS

CITY AND STATE *(Include zip code)* OR CITY AND COUNTRY

DEPOSIT ACCOUNT NO. *(If any)*

YOUR ORDER NO.

DATE

ACCESSION/REPORT NUMBER OR TITLE	TYPE HC/MF*	QUANTITY	UNIT PRICE	TOTAL PRICE	FOR CFSTI USE: ACTION CODE	VERIFIED BY	EXTRACTED BY	EXTRACTED DATE

IF ADDITIONAL SPACE IS NEEDED, PLEASE ATTACH ANOTHER ORDER FORM

PLEASE INDICATE METHOD OF CASH PAYMENT ☐ CHECK ☐ MONEY ORDER →

MAKE CHECK OR MONEY ORDER PAYABLE TO NATIONAL BUREAU OF STANDARDS - CFSTI

AMOUNT ENCLOSED

$

* Type of copy - **HC** stands for Hard Copy
MF stands for Microfiche

USCOMM-DC 26204-P65

U.S. GOVERNMENT PRINTING OFFICE : 1968 O - 788-319

U. S. DEPARTMENT OF COMMERCE FIELD OFFICES
PROVIDE READY ACCESS TO COMMERCE SERVICES

• The Department of Commerce maintains Field Offices in the cities listed below for the purpose of providing ready access to the reports, publications, and services of the Business and Defense Services Administration, Bureau of International Commerce, Clearinghouse for Federal Scientific and Technical Information, Office of Business Economics, and the Bureau of the Census. Information on activities of the National Bureau of Standards, Patent Office, and the Area Redevelopment Administration is also available.

• Experienced personnel will gladly assist in the solution of specific problems, explain the scope and meaning of regulations administered by the Department, and provide practical assistance in the broad field of domestic and foreign commerce. Field offices act as official sales agents of the Superintendent of Documents and stock a wide range of official Government publications relating to business. Each office maintains an extensive business reference library containing periodicals, directories, publications, and reports from official as well as private sources.

Department Field Offices

Albuquerque, N. Mex., 87101, U.S. Courthouse. 247-0311.
Anchorage, Alaska, 99501, 306 Loussac-Sogn Building. Phone: 272-6331.
Atlanta, Ga., 30303, 75 Forsyth Street, N.W. 526-6000.
Baltimore, Md., 21202, 305 U.S. Customhouse, Gay and Lombard Streets. Phone: PLaza 2-8460.
Birmingham, Ala., 35203, 505 Title Bldg., 2030 Third Avenue, North. Phone: 325-3131.
Boston, Mass., 02110, Room 230, 80 Federal Street. CApitol 3-2312.
Buffalo, N.Y., 14203, 504 Federal Building, 117 Ellicott Street. Phone: 842-3208.
Charleston, S.C., 29403, Federal Building, Suite 631, 334 Meeting Street. Phone: 747-4171.
Charleston, W. Va., 25301, 3002 New Federal Office Building, 500 Quarrier Street. Phone: 343-6196.
Cheyenne, Wyo., 82001, 6022 Federal Building, 2120 Capitol Avenue. Phone: 634-5920.
Chicago, Ill., 60604, 1486 New Federal Building, 219 South Dearborn Street. Phone: 828-4400.
Cincinnati, Ohio, 45202, 8028 Federal Office Building, 550 Main Street. Phone: 684-2944.
Cleveland, Ohio, 44101, 4th Floor, Federal Reserve Bank Bldg., East 6th St. & Superior Ave. Phone: 241-7900.
Dallas, Tex., 75202, Room 1200, 1114 Commerce Street. RIverside 9-3287.
Denver, Colo., 80202, 16407 Federal Building, 20th and Stout Street. Phone: 297-3246.
Des Moines, Iowa, 50309, 1216 Paramount Building, 509 Grand Avenue. Phone: 284-4222.
Detroit, Mich., 48226, 445 Federal Bldg. 226-6088.
Greensboro, N.C., 27402, 412 U.S. Post Office Building. Phone: 275-9111.
Hartford, Conn., 06103, 18 Asylum St. Phone: 244-3530.
Honolulu, Hawaii, 96813, 202 International Savings Bldg., 1022 Bethel Street. Phone: 588977.
Houston, Tex., 77002, 5102 Federal Bldg., 515 Rusk Ave. Phone: 228-0611.
Jacksonville, Fla., 32202, 512 Greenleaf Building, 208 Laura Street. Phone: 354-7111.
Kansas City, Mo., 64106, Room 2011, 911 Walnut Street. BAltimore 1-7000.
Los Angeles, Calif., 90015, Room 450, Western Pacific Building, 1031 S. Broadway. Phone: 688-2833.
Memphis, Tenn., 38103, 345 Federal Office Building, 167 North Main Street. Phone: 534-3214.
Miami, Fla., 33130, 1628 Federal Office Bldg., 51 S.W. First Avenue. Phone: 350-5267
Milwaukee, Wis., 53203, Straus Bldg., 238 W. Wisconsin Avenue. Phone: BR 2-8600.
Minneapolis, Minn., 55401, 306 Federal Building, 110 South Fourth Street. Phone: 334-2133.
New Orleans, La., 70130, 909 Federal Office Building (South), 610 South Street. Phone: 527-6546.
New York, N.Y., 10001, 61st Fl., Empire State Bldg., 350 Fifth Avenue. LOngacre 3-3377.
Philadelphia, Pa., 19107, Jefferson Building, 1015 Chestnut Street. Phone: 597-2850.
Phoenix, Ariz., 85025, 5413 New Federal Building, 230 N. First Avenue. Phone: 261-3285.
Pittsburgh, Pa., 15222, Room 2201, Federal Building, 1000 Liberty Avenue. Phone: 644-2850.
Portland, Oreg., 97204, 217 Old U. S. Courthouse, 520 S. W. Morrison Street. Phone: 226-3361.
Reno, Nev., 89502, 2028 Federal Building, 300 Booth Street. Phone: 784-5203.
Richmond, Va., 23240, 2105 Federal Building, 400 North 8th Street. Phone: 649-3611.
St. Louis, Mo., 63103, 2511 Federal Building, 1520 Market Street. MAin 2-4243.
Salt Lake City, Utah, 84111, 3235 Federal Building, 125 South State Street. Phone: 524-5116.
San Francisco, Calif., 94102, Federal Building, Box 36013. 450 Golden Gate Avenue. Phone: 556-5864.
Santurce, Puerto Rico, 00907, Room 628, 605 Condado Avenue. Phone: 723-4640.
Savannah, Ga., 31402, 235 U. S. Courthouse and Post Office Bldg., 125-29 Bull Street. Phone: 232-4321.
Seattle, Wash., 98104, 809 Federal Office Bldg., 909 First Avenue. 583-5615.

FEDERAL REGIONAL TECHNICAL REPORT CENTERS

Each of the Federal Regional Technical Report Centers listed below contains a collection of USAEC, NASA, and DOD unclassified reports as well as reports of other U. S. Government agencies and provides reference, interlibrary loan, and reproduction services.

Carnegie Library of Pittsburgh
4400 Forbes St.
Pittsburgh, Pa. 15213

Columbia University
Engineering Library
Seeley W. Mudd Building
New York, N. Y. 10027

Georgia Institute of Technology
Price Gilbert Library
Atlanta, Ga. 30300

The John Crerar Library
35 West 33rd St.
Chicago, Ill. 60616

Library of Congress
Science and Technology Division
Washington, D. C. 20540

Linda Hall Library
5109 Cherry Street
Kansas City, Mo. 64100

Massachusetts Institute of Technology
M. I. T. Libraries
Cambridge, Mass. 02139

Southern Methodist University
Science Library
P. O. Box 1339
Dallas, Tex. 75222

University of California
General Library
Berkeley, Calif. 94704

University of Colorado
Boulder, Colo. 80301

University of Washington Library
Government Documents Center
Seattle, Wash. 98105

UNITED STATES
GOVERNMENT PRINTING OFFICE
DIVISION OF PUBLIC DOCUMENTS
WASHINGTON, D.C. 20402

OFFICIAL BUSINESS

POSTAGE AND FEES PAID
U.S. GOVERNMENT PRINTING OFFICE

MIAMI UNIVERSITY LIBRARY